



Mendeleev 2016: Study trip to Estonia and Russia

Mendeleev 2016

Final Report



Final report of the scientific and cultural
excursion to Tallinn and Saint Petersburg named

Mendeleev 2016

*“Meesterlijke Excursie Naar De Enclave Leningrad
En Enkele Vodkabrouwerijen”*

PREFACE

What defines a good KBE? A good bunch of people getting out of the city to explore a foreign destination, trying out some local beers and exploring the scientific and cultural environment. This is probably a sound reason that previous KBE's went to fairly familiar territory. Right off the bat the committee agreed that we would like to push the limits of what could be done with the KBE budget and decided to offer a trip that sparks the imagination. Soon we acknowledged that Russia would make the perfect destination. It is surrounded by preconceptions: it is the country of the dashcam videos, the country of Vladimir Putin, the country of Vodka, the country that embraced communism and so on.

However, as always, this is not the entire story and we have tried our best to set up a program that reveals the old and the new of Russia. We have seen the preparations of a large military parade as it is only still found in old communist countries, we have seen the old and new combined in the Ioffe institute where there was a sharp contrast between the degraded setups from the 50's and state of the art setups residing in the same building and we have experienced the glory in the Hermitage and the Fabergé museum as well as

the flip side on a 45 minute walk to a company in Vyborg.

We were joined by an interesting mix of students. A few were FMF furniture, others thought FMF meant free coffee and some had in fact never heard of the FMF before. This made it an interesting but also cohesive group which was perfectly demonstrated by the fact that on the last evening (we had to get up the next morning at 8 AM) almost everyone got rallied up to go to the Poison karaoke bar and most returned only a few hours before departure.

Furthermore, we were joined by Maria and Maxim from the University staff. Maxim has been of great help during the trip, especially because of his competence of the Russian language and his sense of organizing. Maxim managed to get us the best deals and made sure that we did not get screwed over. Maria unfortunately was only able to join us for a few days but it was fun to have her around. We are definitely sure that we lived up to the differently conceived definition of a good KBE and hope we added a little bit of Mendeleev flair by adding Saint Petersburg to the ever-growing list of KBE destinations.

The committee





Preface	2
Committee	5
Yannick Woudstra	5
Joop Adema	6
Joost Calon	7
Oscar Delicaat	9
Bastian Yip	10
Staff members	11
Maxim Pchenitchnikov	12
Maria Loi	13
Participants	14
Excursion	18
Departure	19
Tallinn technology	20
Crossing the border	22

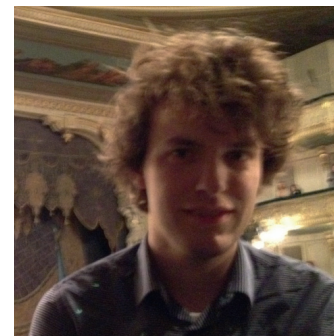


24	It's more than a university
26	Going dutch
28	Museum egg-citement
30	Hermitage and rooftop tour
34	Soviet Russia
37	A fusion of science and culture
40	A royal treat
44	The modern side of Russia
47	The way back home
48	Stichting GBE-FMF
50	Finances
52	Funders
53	Acknowledgements

COMMITTEE

YANNICK WOULDSTRA

Chairman



It has been a long road to Saint Petersburg, especially for the organising committee. A year before the actual trip commenced we gathered for the first time in the canteen of the Nijenborgh 4. We have spent over 30 meetings there with lots of free coffee from the FMF. After deciding on our destination we had troubles piecing together a suitable financial plan and at some point we feared that Saint Petersburg might not be a realistic option. But we kept believing in the plan we had and we spent much of our free summertime to find cheaper travelling solutions and other ways to make the trip less expensive. When the board of the 'Stichting GBE-FMF' accepted our plan in September there was euphoria and we celebrated the Russian way with a few vodkas on our announcement party. Our moment of joy was short-lived however because we

still had so much work left to do. Arrangements had to be made with companies and universities for visits, for some of which we got agreements only several days before departure. The inclusion of Tallinn in our programme asked for extra commitment by our day schedulers. Probably the most underestimated task was the arrangement of visas for all the participants. Getting into Russia is not easy when you are in a group of 27 people with different nationalities. After a few visits we became quite familiar with the ladies working at the visa support agency in The Hague.

It has been a very long road indeed but the twelve days in Tallinn and Saint Petersburg made up for all the hard work and frustrations. Those were beautiful cities with interesting and very different cultures. I must thank my colleagues for all the effort they put in this trip. You all worked really hard this past year to get it all together and never gave up. Joop put in all effort to make every euro count and Joost had done an awesome job in all of our designs with our beautiful logo as the pinnacle of his work. Bastian and Oscar have put together an amazing programme, an achievement that future committees can look up to. I hope that our successors will try to achieve similar trips, going to far-off destinations. KBEs are in our view not limited to road trips anymore, we have crossed the borders of Europe and



proved that it is possible. For me, life is about exploring the diversity that our planet holds and with this trip I have added another chapter to that book.

JOOP ADEMA

Treasurer



After a year of planning, discussing, arguing and making large efforts, we managed to organize a fantastic trip. I was supposed to be a day scheduler initially instead of the committee treasurer, but after the loss of Jan I was made in charge of the financials. Jan's legacy was the furious wish to end up in the hands of the Russian Lady (in)-Justice.

Our committee was an extraordinary one in terms of effort, but also in terms of our personalities that did not went along without problems. Sometimes, accepting we disagreed was the best we could do. Furthermore, we had some really lucky moments. The visa of both Roman and

Enrique were only successful after 6 (!) visits to The Hague and were ready at the last day before the trip.

After deciding to go to Saint Petersburg, the feasibility of the trip was unsure for a long time (even after the participant registration). Travelling via Estonia already improved the financial foresight significantly. Ironically, the most important development that made the trip feasible were the frictions between the West and Russia. Import embargos from both sides were imposed, causing the Russian Ruble to depreciate. Consequently, the hostel in Saint Petersburg only costed an astonishing 4.80 Euro per person per night, including breakfast and transparent coffee.

With my rainbow-coloured wallet and my black booklet as most important items, we could finally depart on April 18. Especially the contrast between the cultural, scientific, military and economic highlights and the ram-shackled buildings, poverty and inequality has impressed me in every way. The world of beautiful performance art and architecture of the Mariinskiy theatre, research equipment at IOFFE and the military parade at the palace square was a different one than that of the blues of Rooftop Sacha, the drunken beggars and the rickety houses in the countryside. The beauty of Saint Petersburg at night struck me as well:

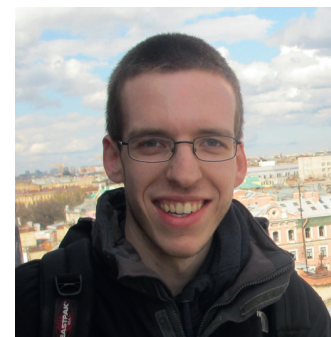


the static buildings along the large Prospekts and river embankments were illuminated in a beautiful way. Accompanied by committee and participants, I had a really good time. The joint lunches, dinners, nights out, city tours and mandatory activities never wasted my mood.

The history of Russia embodies both the period of the Czars and of the Bolsheviks, both praised and hated by the Russians, but always omnipresent in architecture and statues (count the Lenin statues!). For me and probably the rest of the committee, Maxim was a great help and an interesting travel companion. He asked the right questions, told interesting background stories about himself, Russia, arts, and the current political situation. Moreover, he suggested to gift original Dutch cheese to the professors and company employees in Russia, since due to the embargos Dutch cheese was rare nowadays. Only after departure Maxim told us careless that it was illegal to bring cheese into Russia. Nevertheless, the cheese was our blessing. It caused the budgetary problems to fade away and we at least made an attempt to stick to the legacy of Jan!

JOOST CALON

Secretary



It was late in the evening, at an FMF active member dinner, when I was asked the question if I would like to join the KBE. I had never done such a thing before but as soon as the idea hit me, it took me just an instant to make up my mind. The first thing we did as committee was deciding a location. During a meeting I introduced Tallinn/Helsinki and carefully mentioned that Saint Petersburg was very nearby which was unexpectedly retrieved with much enthusiasm.

Since Russia was something much farther than any of the previous KBE excursions went for, the following summer holiday was a struggle to get everything round. The 'stichting GBE-FMF' who was watching over us gave us a deadline strict at the end of the holidays to get our finances right. This resulted in that we had a meeting during a hot summer day evening full of thunderstorms which lasted till past midnight. In this meeting we evaluated all options



which were getting crazier by the hour. But luckily we did not have to continue our plan of a one week cycle tour past the Norwegian border because the unstable Russian ruble in the end saved our day.

Even though I was the secretary, I was probably not the best choice to write notes during the meeting due to my not so well grammar. Therefore, I soon managed to earn an action point by Yannick to check all of the meeting notes at the end of the KBE which, I'm afraid, is one that still stands today. Luckily, this was only a small part of my tasks. One thing I liked about my function is that it was very diverse. This included working on the designs, having contact with staff and participants, requesting subsidies, taking over Yannicks job as a chairman for a month and helping Oscar and Bastian with their day scheduling when it was necessary. And not to forget, one important part of my job was listening to the scratchy phone tunes which were thrown at me from the Russian consulate in The Hague for the visa.

And then the moment was there when we left with the bus from Groningen, it was a strange sensation having worked for a year on this trip. Soon after, trouble broke lose when Eva lost her passport in Bremen. She could luckily travel with us to Tallinn but her passport was send after us which

would take several days. After a small talk with the committee on how to proceed, we decided that I should stay in Tallinn with Eva till the passport arrived. This allowed us to see some more of Tallinn and visit an abandoned soviet prison which was very impressive and also as cold as the cold war itself due to its location near the sea. It was an euforic moment when the passport arrived, we booked a bus for 6 am next morning. After accidently waking up some germans with my alarm, we then set of to our final destination.

Saint Petersburg itself was an unique experience; we saw many aspects of Russia ranging from rich historical museums as the Hermitage to a company hidden in the outskirts of Vyborg. I remember this time as very hectic but also very enjoyable. It was amazing being there with a group of enthausiastic students and its definetly something I'll remember the rest of my life.



OSCAR DELICAAT

Day scheduler



When applying to organize this trip I did not know what to expect. It was my intention to set up a trip that was more than cruising around with minivans to countries which were familiar. I vividly remember the meeting at which we were discussing possible locations for our KBE. Ireland, Turkey, and Poland were all mentioned. Joost had the more ambitious idea of going to Tallin from which he also suggested the possibility of going to St. Petersburg. Moreover he already did a little investigating and found out that it was in fact not all that expensive to set up a trip in that direction. At that point we collectively agreed that Russia would make for a very appealing visit.

After setting our eyes on this location the research started and we noticed that this location would make it a bit more complicating. We had to arrange a visa for everyone, vaccinations had to be covered and the travelling went from Groningen over Bremen and Tallin to Russia. These and

more of these kinds of issues led to a balance that did not seem viable. Fortunately Russian politics saved the day as the ruble plunged and the trip got a whole lot cheaper.

Now the actual planning started. Bastian and I were responsible for the program in Russia. In addition to all the general planning we had to conduct countless phone calls to Russian companies to the point where the ladies at the international telephone exchange of the RUG recognized us immediately. The Russians were always very reserved over the phone and it was hard to actually get things done. One of the more memorable moments was when I called Gazprom, one of the largest worldwide transporters of gas, for a visit to the office in St. Petersburg. The lady answering the phone was, as to be expected, Russian. I asked her whether she spoke English. "No.". This wasn't all that surprising so I continued: "Is there anyone else there who speaks English?". "No.". This was of course not true at such a global company so I insisted "So you are telling me that there is no one at Gazprom who speaks English?". This was followed by an annoyed sigh as she redirected me to another, perfectly English speaking, colleague of hers (I guess she did understand English after all). We then got the request to send a letter stamped by the university to the director of the company responsible for the St. Petersburg



department. He would then decide whether we could visit or not. This astounded me, a director who was responsible for 6000 employees would have to take time out of his day to make a decision about the visit of some students. I think that gives a nice impression of how our planning went.

However, hard work pays off and I think we managed to set up an, in my opinion, great trip as you will see in this report. We were joined by a fantastic group and Maxim who managed to hustle the best deals for us, made us avoid large queues and even managed to bring a smile to the face of the cashiers. My original intention was certainly satisfied and having gotten to know this country I am sure I will return some day.

BASTIAN YIP

Day scheduler



The KBE trip to Saint Petersburg (Russia) is now a fond but distant memory. A trip that was more wonderful and amazing than I could ever have imagined. I am truly grateful to my committee members but also to the institutes and companies we were allowed to visit. It has been an exciting ride throughout the organisation of the trip, from getting admitted to the committee to finally departing for Russia.

The story starts somewhere in September of 2015, when I wanted to join a committee at the FMF for that academic year. A committee that holds more responsibility than those I have been in before. As chance would have it, a position in the KBE committee opened up for a day scheduler. It seemed like a great committee to join and it fulfilled my requirements. I knew the committee members (not as well back then as I do now) so that we could skip formalities and get started planning right away. Furthermore, I want-



ed to see if I could handle the stress that came with these responsibilities, more so as a challenge to myself. And of course as an added bonus, we as day schedulers could decide where we wanted to go and what we wanted to see. Finally, the location we would visit is one of a lifetime. Russia did not particularly attract my attention at first as a country that I would visit on my own. There is a steep language barrier, their culture did not sound particularly attractive due to what you see on the internet and it is not that easy to enter the country due to visa restrictions and tensions between Europe and Russia that has been brewing.

The first few weeks of joining were fairly tough, it was a completely new experience for me and I did not quite know where to start. After asking some people for information on how to tackle such an adventure, we got a hint to start asking people affiliated with the university, if they had any contacts in Russia. This prompted us in sending emails to various people but we were met with lukewarm responses. The knowledge of the existence of the Dutch institute in Saint Petersburg (NISPB) was crucial to our journey. NISPB helped us out tremendously, they directed us towards several companies and institutes which we could visit and they helped us in establishing contact with others. This naturally gave us hope that a great programme for the

KBE is undoubtedly feasible and we started sending emails and calling these companies, institutes and even museums.

As we neared April, the programme became more elegant by the day. This was absolutely necessary as we approached our departure date quite rapidly. And what seemed like a blink of an eye, we finally embarked on our journey to Saint Petersburg on April the 18th 2016 but not before paying Tallinn a short visit.

It was such an exceptional feeling that everything you have worked on for the past few months finally came together. The voyage itself was everything I could wish for. Tallinn's old town has a great medieval feeling to it and definitely worth visiting. The centre has a really cosy feeling to it and all the touristic hotspots were easy to reach by foot. But of course, the main attraction was Saint Petersburg. Saint Petersburg is such a beautiful city, the people are friendly, the traffic is insane and the food is amazing. Not only has the trip been a cultural enrichment but it has also been a paradise for any food lover. Last but not least, the group of participants were a great bunch which made the excursion as memorable as it is.



STAFF MEMBERS

MAXIM PCHENITCHNIKOV



When I was approached in September 2015 with a request to supervise a group of the FWN students to Saint Petersburg, I was a bit hesitant. It looked like a great pain in the neck (we all know Dutch students... from different sides) but I am always looking for new experiences. And I liked the city very much, too! So I agreed and we began to work out the details. “We” here stands for more colloquial sense because that was the organizing committee who did the job while I occasionally provided a piece of advice. Finally, everything came together and we met near the Vyborg railway station as we had arrived to St Petersburg via different routes.

The adventures began immediately. At the train station I asked for 250 tokens (1 token = 1 metro ride) so that the cashier hardly believed me so that I had to explain down

to a tiny detail why I needed 250 tokens. Next, the security guy was excited upon seeing such a tremendous crowd with suitcases and backpacks so that he undertook the thorough control over the luggage to ensure we are no terrorists. All these took a lot of time but finally we managed to arrive at the hostel.

The hostel BroadSky was quite OK. The staff was welcoming and helpful despite occasional friction with the tenants. The best joke was when the students asked for better coffee in the morning and the staff replied “the better coffee will arrive as soon as you begin to clean dishes”. There might have been some congestion in the earlier hours near the showers so that I leant to get up a bit earlier than the crowd – which already was very early, typically at 7 am.

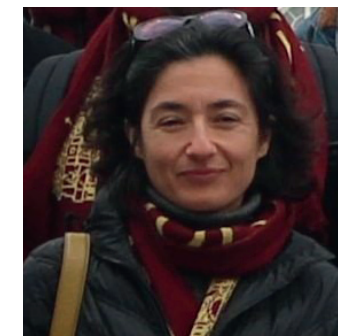
What I remember best of all are of course the extremes. ITMO was excellent and so was Optogan. The Ioffe institute surprised by the labs that had not seen any renovation since the Ioffe times (or at least they appeared so) – and just around the corner we found the most modern labs stuffed with the state-of-the-art western equipment and extremely knowledgeable staff and students. The visit to Vyborg appeared to be a total waste of time – however, it



allowed the students to see another Russia, far from the parade faces of St Petersburg. The Mariinsky theater was simply down-knocking, with famous Gergiev conducting the opera. Witnessing the rehearsal for the V-day parade demonstrated the unbreakable might of the Russian military panzer (although a German word might not be appropriate in the context). The Hermitage and the Katerina Palace were unforgettable, too. The boat tour along the canals was remarkable, too, also because the students finally began to behave as the normal Dutch students, so that I even had to raise my voice quite a few times when the situation from my perspective was going out of control.

In conclusion, the Organizing Committee has done a tremendous job in finding and scheduling the daily events as well as in managing the trip. The students were extremely easy-going and showed nice team-playing. I myself enjoyed every moment of the trip and am very grateful to all members of the group for the provided opportunity!

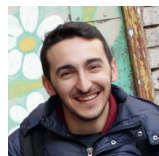
MARIA LOI



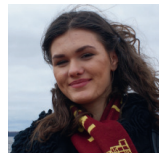
Maria Loi started her academic journey in Cagliari, Sardinia and did a Ph. D, there as well. Since 2006, Maria works at the university of Groningen and became a full professor in 2014 in Photophysics and Opto-electronics. To date she (co-)published 107 research articles in international journals. In 2011 she won the Minerva Prize by ‘stichting FOM’, acknowledging both her research expertise and the role model that she has become for women in physics.



PARTICIPANTS



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Physics



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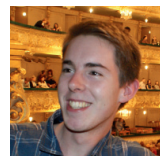
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(Wouter Baar)
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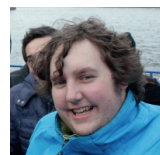
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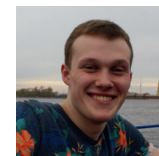
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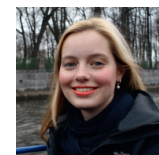
ЕНРИК ПУЕСКА САНТИЯГО
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ИННЕ ЛЕМСТРА
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МАРТЕ РЕЙТЕР
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Mathematics

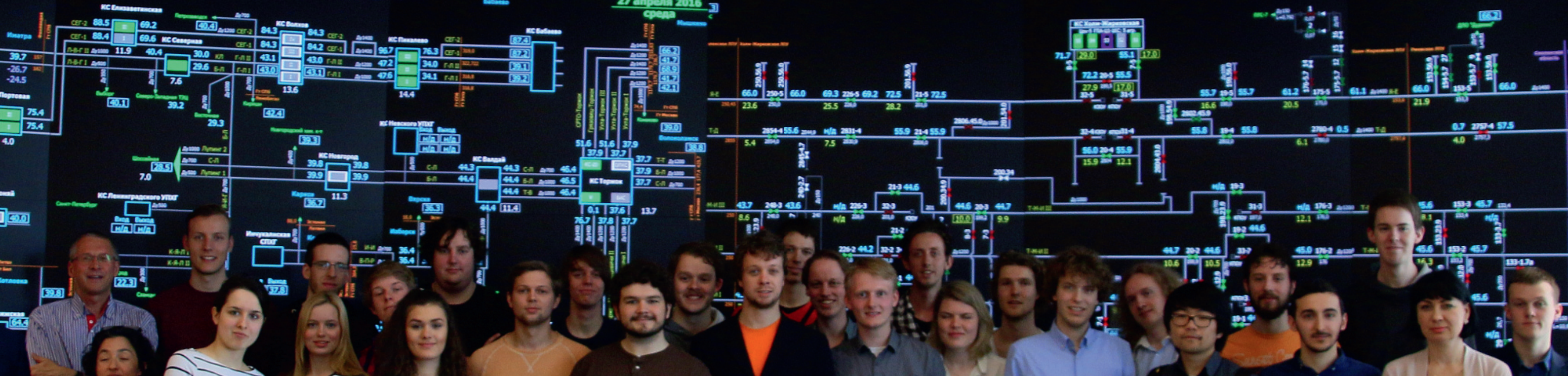


РООС ВЕСТЕРБЕЙК
(Roos Westerbeek)
Mathematics



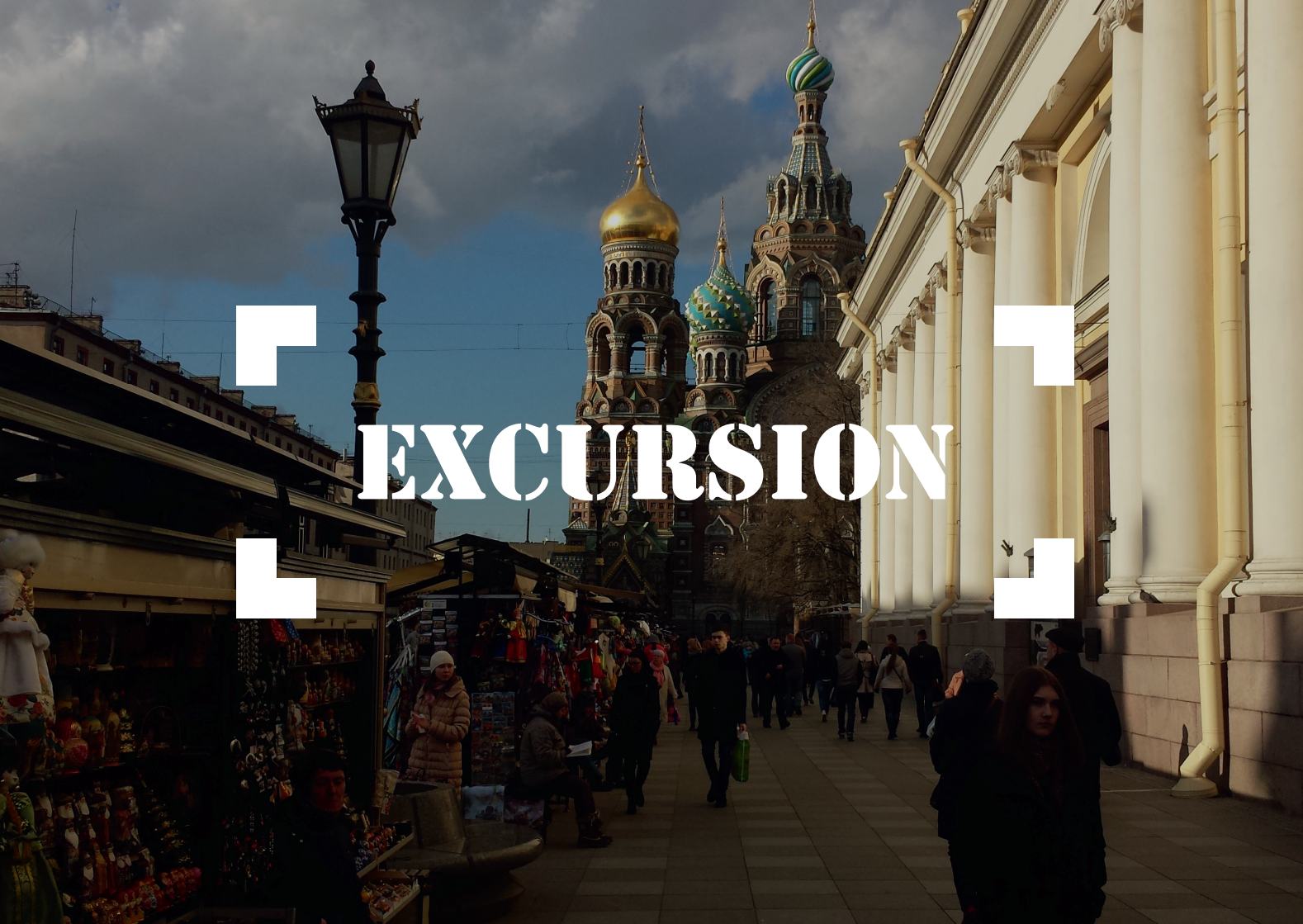
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Fysisch-Mathematische Faculteitsvereniging





APRIL 18: DEPARTURE

Written by: Yannick

The first day of our trip was immediately one of the most hectic. While everything went according to plan during the gathering at Groningen station, things did not go as smoothly at Bremen Airport. We discovered that on the way to Bremen, one of our participants had lost her passport in the bus. Fortunately, we were able to get her past the security of the airport with a copy of her passport so she could join us on the flight to Tallinn. We frantically called everybody who could help and in the end the bus driver came through for us by sending the passport to Tallinn via priority delivery. The rest of the journey however was quite smooth and we even applauded for a successful landing of the Ryanair flight. In the medieval old town (Alur) of Tallinn some of us ended the day with beer and meat, the rest (including me) went for surprisingly delicious vegan food.



APRIL 19: TALLIN TECHNOLOGY

Written by: Oana & Peter-Jan (PJ)

On our way to Saint Petersburg we had the pleasure of exploring Tallinn, the capital of Estonia. Tallinn is a city where old and new go hand in hand. This could be seen in almost every street, for instance old trams followed by new trams and old buildings next to new ones. Our busy program started, as always, very early in the morning. We visited Ericsson, a company specialized in Radio Frequency (RF) communication. It is a huge global company that operates 40 percent of the world's mobile traffic

through its networks. We were greeted with cookies and fruits followed by a presentation about the company and its research development projects, such as 5G technology. Afterwards we had the privilege of seeing every step of their production line, from single chips to complete printed circuit boards, finally assembled into radio transmitter stations, ready for delivery.

After completing the morning program, we were allowed to fill our empty stomachs in the canteen of the Tallinn University of Technology (TUT). TUT was very welcoming with an interesting lecture given by prof. Jaan Kalda, who illustrated for us the principles of turbulent mixing with examples ranging from waves in the sea to the magnetospheres of stars. The lecture was followed by a tour of



the faculty. We saw some undergraduate students doing some basic physics experiments with equipment reminiscent of our own early days in physics. The Materials Science department was doing cutting edge research on high efficiency single crystalline solar cells. They were able to make relatively large single crystals with a diameter up to 50 microns. In the evening the place to be was called "Ill Draakon". A medieval style 'tavern' with just meat on the bone, pickles, a large mug of beer and live music. Some of us had soup. They didn't accept the conventional currency "euro" as payment, but their own unit: "money". On our way back to the hostel we also learned a funny fact from Roman about Scotland: "Scottish drinking is more or less the same as English drinking, only you drink more".



APRIL 20: CROSSING THE BORDER

Written by: Yannick & Robbert

As we close in on the Russian border, the driver of our EcoLines bus makes more and more remarks in Russian and Estonian. Only when we actually cross the border he struggles to speak the English words 'passport' and 'no pictures'. Crossing the border it is clear to us that none of both border controls really trust each other. First we have to deal with a strict-looking young Estonian woman in uniform who takes all our passports, but returns them some 20 minutes later. Then we enter Russian territory by crossing this beautiful old bridge between two castles ('no pictures'), leaving the European Union and the city of Narva behind. We are greeted by Russian flags, buildings reminiscent of Soviet times and grumpy Russian women. One of the women enters the bus and checks all the passports after which we are allowed to drive 200 meters! The bus stops at a border control station and people leave the bus. We are confused but soon realise that we have to



take our hand luggage with us and step into the control building. One by one we are commissioned to step forth to face a lady who did an amazing job looking furiously at us. After more than 10 seconds of an intense and slightly awkward staring contest, the passport is scanned and stamped. Hereafter, you are allowed to walk across the border through a metal detector. Of course there was also another passport check to check if the first passport checks were correctly done.

And there we were, at our final destination: Saint Petersburg. And our first experience was a wonderful one: getting checked by the Russian equivalent of TSA before going into the subway system. After all of us making it



through this unscathed (except for Johan and his suspiciously large jacket), we went into the 300 feet down subway system on our way to the hostel. Once at the hostel, we had a little time to unpack, claim our beds and familiarise with the hostel a little. As soon as the committee gave the sign, then, we were to gather downstairs and head off to the restaurant Severyanin where we were to have a group dinner with traditional Russian food.

The (long) walk to the restaurant was a welcome introduction to the city. We saw the prime of town, like busy streets and a major subway station, and the lower ends, with the road being devoured into mud and puddles. Eventually we got to the restaurant, where we had a wonderful dinner



(three courses of high end food!) in a great ambiance with tables where we could draw and scribble on. The best part of it all was that the committee had already paid the bill. We took another route back, which took us along a keystone of our trip: the Church of the Savior on the Spilled Blood, the iconic Russian Orthodox church where our logo is based on. It looked gorgeous at night, with the turrets being lit in the dark. After having awed at it for a little bit, we retraced our steps and walked along the Nevsky Prospekt back to the hostel. (also, on request of Inne, the massively high curbs need to be mentioned, and they were half a meter easily). We got back to the hostel at around 23.00, and since no one really had any Russian Rubles, we settled for a quiet night.



APRIL 21: IT'S MORE THAN A UNIVERSITY

Written by: Roman

We began the day by visiting ITMO, which is one of Russia's leading higher education and research institutions, specialising in Information Technology, Optical Design and Engineering. The University is the legacy of the old Soviet defence ministry, and initially focused on optics and fine mechanics, but has since branched out and become much more multidisciplinary. It also had a link with our country, namely double degree programs with the University of Amsterdam. We saw a few of their simulations and models of various systems, for example traffic around St. Petersburg, the human body, and crowds after a football match.

The main focus however was laid on the flood prevention system of St. Petersburg. A 27km dam has been installed across the tip of the Gulf of Finland to prevent floods in Saint Petersburg. The dam, based on Dutch design, oper-

ates via several sluice gates which can be opened or shut to change the flow of water. St. Petersburg has been historically prone to flooding, since cyclones often come up the Gulf directly to St. Petersburg. On top of that comes the fast flow of the river Neva, flowing from Lake Ladoga which lays restrictions on the closing time of the dam. At ITMO they built a model to simulate the flow of water in the entirety of the Gulf of Finland and the Neva river to work out the best scenarios for opening and shutting the gates. After a showcase of another simulation lab we drank coffee with some students from ITMO. It was interesting to hear their view of the Netherlands as some of them had



visited Amsterdam. We had such a good time that some students decided to exchange phone numbers so we could contact each other for a night out.

In the afternoon we were fortunate enough to visit the dam that ITMO simulates. We saw several of the gates, including the largest channel through the dam which is 200m wide. The dam also has a 1.2km long underground tunnel, the longest in Russia. We visited the dam with the Saint Petersburg branch of Imtech, who operate the automatic traffic control system of the tunnel. This system automatically diverts vehicles that are too large for the tunnel, preventing accidents and forthcoming traffic jams. They showed us their control room, from where the speed limits for each lane of traffic can be changed. The dam as a whole sees a lot of traffic, since it is part of the St. Petersburg ring road. Since its construction in 2011 the ring road has helped reduce congestion, as well as flooding. After sustaining the blistering cold wind at the dam, we visited the large Naval Cathedral on Kronstadt to finish the day. This is one of the most beautifully decorated churches in the vicinity of Saint Petersburg with, of course, everything on the interior covered in gold.



APRIL 22: GOING DUTCH

Written by: Thomas & Wouter

After waking up a bit later than usual we went to the Netherlands Institute in Saint-Petersburg (NISPB). It is one of the only five Dutch scientific institutes abroad, and together they promote and represent Dutch universities in their respective countries. The aim of NISPB is to stimulate and internationalize education and research in Russia and the Netherlands. For example, they accompany Dutch students if they want to study in Russia for a semester.

After a nice presentation in which they explained all the things they do, we had an interesting question session with the Dutch consul-general of Saint Petersburg. We talked about Russia and Russians in general and the cultural differences with Dutch people. We discussed human rights, the Dutch Royal family and the consul-general told us about his important work. Since we had some time left before the next appointment, we brought a visit to the nearby Smolny Cathedral. Unfortunately the church was covered in scaffolding but the interior was still a very beautiful

sight.

We then took off to Optogan, where we started with a not-so-successful lunch. Optogan is a company that specializes in producing high brightness LEDs. They produce many LED lightings for offices and road lanterns. After a general presentation and a mini-lecture on LED functioning with an awesome chalkboard, we visited the 'show-room'. Here they display all kinds of illuminating products that the company produces which led to a button-pressing mayhem among the students. We then visited the actual production site where our host, Boris Kim, explained every step in the production cycle.



Finally, some of us concluded the day partying, as Friday night was the night out! We went to Dumskaya, a street in St. Petersburg notorious for its pubs and clubs. Since Dumskaya was quite close to our hostel, we walked there. It was immediately clear that we were at the right place: taxis everywhere, people outside sucking laughing gas out of balloons and night clubs left and right. We went to a club named Barbara. After paying a small entrance fee and receiving a stamp of some angry looking bouncer we were allowed to go inside. Now, in Russian clubs there are some elements that you will always find: several dance floors, a permanently occupied table football game and of course a karaoke station. This night, we decided to stick with the dance floor.



APRIL 23: MUSEUM EGG-CITEMENT

Written by: Jan & Gawein

As many people went out the night before, part of the group arrived back at the hostel at the first signs of dawn. The first planned activity of the day program began only a few hours later, with Yannick & Maxim leading an excursion to the Peter and Paul fortress. This being an optional part of the program, some people took the time to sleep in and/or pursue their own agenda (as did we) before joining the mandatory trip to the Fabergé museum in the afternoon.

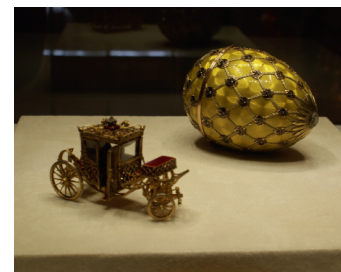
This museum was a real treat: of course it cannot compete with the Hermitage in sheer size, but the density of diamonds per square meter was certainly Saint Petersburg worthy. However, the beauty of most of the jewelry on display lies not necessarily in the amount of gold nor the number of diamonds, but in the finicky details and incredible craftsmanship. The Fabergé firm did quite some pieces commissioned by the Tsars, among which the famous Fabergé eggs: think Kinder surprise eggs, replace the

chocolate with gold and precious stones and the surprise with some crazy jewelry. Also noteworthy were the excellent guides, who could answer just about any question in terrific English. This was the only planned part of the program that day, so afterwards the group split up again. Some of the late sleepers took the opportunity to go to the Peter and Paul fortress, some went to see the inside of the Church of the Savior on Spilled Blood (as we already admired the outside three days earlier). Me (Jan) and Joost went to a Prokofiev piano recital in the Concert Hall. This composer died 125 years before which they only found out two months ago, so they changed all concerts (including the opera we visited the week after) to something by Prokofiev. This is how this stuff works in Russia, Maxim



told us. Maxim gave us also some other useful inside information earlier on in the trip. Unfortunately, not everyone had heard all of it, so quite a lot of people found out the hard way that a pizza in Russia does not necessarily contain any cheese. Luckily, me and Joost already had dinner somewhere else.

Even though the next day was still part of the weekend, a lot of people chose to go to bed early. This had everything to do with the exciting mandatory event that Sunday morning and afternoon had in store, which most of us wanted to tackle well rested: the Hermitage. Some people however, can never say no to a party. Me (Gawein), PJ, Oana and Roman danced salsa in a salsa club and went to a techno party afterwards, while Marthe, Chris, Hallo, Frank, Oscar, Roel and some girls we met at ITMO University visited Dumskaya again.



APRIL 24: HERMIT-AGE AND ROOFTOP TOUR

Written by: Marthe & Enrique

Today was one of the most important days in our trip, just because we were visiting the biggest highlight of the cultural part in our trip to St. Petersburg: The Russian State Hermitage museum. Truth be told, the day before was our scheduled party night (because the organization was so efficient that even the parties were scheduled, no joke) and that morning, after a well-cafeinated breakfast we set foot to Nevsky Prospekt. On our way, we made one stop at the front of the Kazan Cathedral to take the first group picture of the day, showing around our FMF flag like good tourists. The next photo would be at Dvortsovaya ploschad, the square at the front entrance of the museum with the huge Alexander column in the centre.

The hermitage was in one word overwhelming. The sight of the Winter Palace, this colossal building (former residence of the Tsar) at the other side of the square was very



impressive. The inside of the palace was even more stunning with beautiful ceilings and a massive art collection. There was no guide and no tour arranged by the committee, so we were able to roam around freely by ourselves. Unfortunately, some of us only got to see a part of the hermitage as the rooftop tours were planned in the afternoon. But still, what we saw inside left us speechless for the rest of the day. Pick any place, any moment in time and the art produced there and it can be seen in the Hermitage. Starting with ancient Egypt, one massive room full of antiques



including real tombs and a mummy. Followed by Greece and Rome with the 3 meter tall statue of Jupiter amongst loads of other things.

On the second floor there was a skilfully placed combination of local and foreign art. Since the Winter Palace was a masterpiece by itself, they kept the biggest and most impressive rooms empty. Like the Malachite Room or the

Great Salon, all covered in gold and perfectly reconstructed. The rest of the building held the most representative pieces the museum had on neoclassical French, medieval Germany and Renaissance Dutch, Flanders, Italian and Spanish art. Gigantic collections with dozens of pieces per room, so impressive that we got the feeling that one could spend a lifetime just sitting and watching there.





In the afternoon we had to rush through our lunch and back to Vladimirskaya metro station for the rooftop tours. This was an optional activity, since some of us (understandably) preferred to spend more time in the Hermitage. But it was a truly remarkable experience. Ever since the KBE announcement I (Marthe) was anxious about this activity, partly because I only half expected it to be true. I vividly remember a vodka-induced Oscar trying to persuade me in joining this trip by rambling on about experiencing the 'Real Russia' on the rooftops of St Petersburg. Who knew this was actually going to happen.

I think none of us knew what to expect. Was it going to be an officially marked trail over roofs in St. Petersburg? Did we have to climb? How were we going to get on the roofs?

After some waiting at our meeting point and taking some uneducated guesses at who would go to guide us that afternoon, we met up with Sasha, a troubled looking peer who was going to be our guide. Still not clear what we were going to do we followed him like sheep until we arrived at an apartment building. Instructions were clear: all the way (six stories) up. Once upstairs, we passed through the roofing community's hang out place and climbed some ladders until we were finally on the roof itself!

First all of us were a little shaky and unaccustomed, but that changed quickly. When we returned at the skylight through where we arrived at the roof we shared a few laughs about how nervous we were the first few steps, what turned out to be the easiest part of the tour. We didn't



know then we soon had way more difficult and slippery climbs to make. And the experience? Astonishing and breath taking. We got to see St. Petersburg from a whole new perspective. Also, the weather gods seemed to like us this day. Instead of the usual grey weather we got so far we were blessed with a shining sun which lit up the roofs and the city beautifully. Like enthusiastic children, we followed our photo-enthusiastic guide Sasha over the roofs, grabbing chimneys for support and doing our best not to fall down. Did we want to join him over the circle of death? He asked us. Hell yeah!

I think at the end of this day all of us felt tired, but satisfied from the overwhelming impressions the activities in this day gave us.





APRIL 25: SOVIET RUSSIA

Written by: Koen

A symphony of alarm clocks and mobile phones announced the start of the day at 6 o'clock SHARP. Within a few seconds I realized the meaning of all the alarms going off at once, and I reached for my clothes and towel to sprint and stumble to the showers, only to end up in the cue of people from the other room that decided to start live half an hour earlier. After some Russian (read: transparent) coffee we were ready to leave. To complete the list of used transportation options our committee decided to take the train to Vyborg, some 150km from Saint Petersburg.

The ever safe schedule allowed for a quick view at the Lenin statue at the so-named square where, allegedly, Lenin incited his 'comrades to do what must be done' in 1917. A quick nap and bridge lessons made the time fly by. Little did we know that upon arrival in Vyborg what awaited us was a 15 minute (read: 1 hour) walk through the slums and across abandoned factory terrains to reach the Bee Pitron production factory. To quote Nick: "they say time travel

isn't possible, but today we went back to the Soviet Union." Jan was greeted the manly way by a smash in the face from a toilet door, but we agreed that the door was as much at risk as Jan, so it wasn't a big deal.

Salvation for the wounded and the exhausted could be found in the cookies, which were as good as the coffee was bad. The complains about the coffee invoked me to notice the elite-attitude in these complaints while watching the Vyborgian lower-class work their ass off through the glass windows in the high-office we sat in. Our guide Alexander then showed us around the factory, answering some intelligent and some less than intelligent questions from our side. The company visit was concluded by a presentation on Bee Pitron, which started a bit rough with the accidental demolishing of a cabinet by Roel and PJ, which was taken rather well by our host. The presentation showed some interesting stuff, not in the least the quick skipping through some pictures of military rocket stations.

The taxi-drive to the restaurant was as dangerous as it gets, but the food was worth it. 'Een lekker hapje eten' is what we came for and it is what we got. Roel showed his excellent Cyrillic skills by recognizing 'kebab' but the other 27 people used the single English menu available to order. Pay



was done the Dutch way, so it took forever but eventually we reached the last remaining tower of the medieval fortress once protecting the surroundings of Vyborg. Here we got a quick peek into the life of 'Wild-Eva' as she has been known since, but luckily we found an easy route to the top of the tower before she finished her rather ambitious and dangerous attempt. After a couple of hundred stairs we got to the top of the tower and we were treated with an excellent view, both of the land skirt reaching all the way to Finland and the seemingly war-damaged town of Vyborg.



APRIL 26: A FUSION OF SCIENCE AND CULTURE

Written by: Eva & Hallo

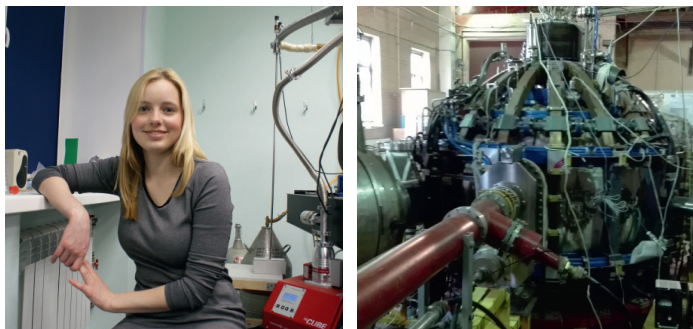
This day was fully scheduled with a fine mixture of educational and amusement elements. We started early again and took the metro to visit the Ioffe Institute which is specialized in physics. We visited a lot of their experiments of which only a few will be briefly touched upon.

The most impressive one in our opinion is the Globus-M tokomak. A tokomak is a chamber to study the properties of plasmas. The main aim of a tokomak is to reproduce a nuclear fusion reaction similar to that in stars for power production. The chamber reaches temperatures up to 5 million Kelvin and because no known material can hold these high temperatures the plasma of mainly hydrogen isotopes is held in the torus of the chamber by a very strong helical magnetic field. It takes two full days to get the chamber at the right vacuum pressure.



We also got a tour at the manufacturing department for silicon solar cells. This department sounded more like a company rather than a research institute, but they explained some of the technical details of their products. The Russian government supports local producers of solar cells in order to replace some of the energy production by solar-powered sites.





The Ioffe Institute kindly arranged an enjoyable lunch which was succeeded by a general lecture about the institute by the director himself. He turned out to be the husband of Elena Ananyeva from Imtech, who visited the Kronstadt dam with us. Later on in the trip they tried to arrange a date with Oscar for their daughter because she wants to study physics in the Netherlands. The final part of our tour comprised visits to some impressive labs among which was a demo in collision spectroscopy.



In the evening we visited one of the most impressive parts of our trip: the opera “Betrothal In A Monastery” originally by Prokofiev, conducted by Valery Gergiev in the world-famous Mariinsky theatre. The theatre was huge, packed and absolutely stunning. The people that came to see the opera – most of them aged from 40 to 70 – were dressed very nicely as well, so as to match the theatre, and some of us felt a bit shabby looking around ourselves. We counted lots of beautiful dresses and lots of bald heads. The orchestra, the dancers and of course the opera actors all did an amazing job, and the opera itself was long but gorgeous. While the plot – young people eloping in some marriages – was not very deep, the humour made up for that completely. The most often recurring themes were love and fish. It was about 35 °C inside but other than that this was an overall amazing experience, worthy of the 15-minute applause.





APRIL 27: A ROYAL TREAT

Written by: Roel & Chris

In the morning when we were not yet fully awake, we already had the first reprimand of the day. Someone stole Joop's bananas. After Joop blew off his steam, we were ready to go to Gazprom. When we were already very close to Gazprom, the committee realized they had scheduled too much travel time (again), so we had a "happie eten" at the Subway. Then we were ready to visit the biggest company in Russia and the biggest producer of natural gas in the world.

When we arrived at Gazprom we first had a passport check before we were allowed to enter the building. Once inside we walked to a conference room where Maxim got a job as translator. We were entertained with a nice introductory talk on the company, including a short movie. Besides having a large number of employees, Gazprom also supports new and future employees by financing their study costs. We were shown around the building (lots of winding corridors) and ended up in the control room. From here

all gas pipes and compressor stations in the North West region are monitored, around 50% of all the gas exported from Russia. All pipes and stations can be viewed on a large screen covering the entire wall. If something happens, 'Moscow' can shut down the pipeline within 10 minutes. The people here work shifts of twelve hours for five days a week. To keep them happy there is an aquarium and living room with shower on the opposite side of the room. When the tour had finished, we enjoyed a lovely lunch in their canteen, where there even was the possibility to eat fish or chicken. We apparently annoyed some of the workers there because we kept a lot of tables occupied.



After our interesting visit to Gazprom, we said goodbye to Maria Loi. Then we went to Tsarskoye Selo, where a few summer palaces of the tsars are situated. The biggest and most impressive of the palaces was the Catherine Palace, where we had a guided tour. The Catherine Palace contains many beautiful rooms, including the world-famous Amber Room. Other rooms had a weird mixture of gold leaf and

Delft blue. After the tour we were free to explore the Palace gardens. After we fed the pigeons with bread, quasi-cheese and 'stroopwafels', we split up in groups. The garden were huge with a nice lake, a pyramid, beautiful baroque buildings and lots of trees.

We concluded the day with a nice dinner next to the palac-



es. The first course was a tasteful home-made horseradish vodka, which was celebrated with a great semi-end speech by Yannick. Of course the temperature in the restaurant was again way too high for us Dutchmen. So we gladly stepped back into the cool afternoon, waiting for the bus to pick us up.



APRIL 28: THE MODERN SIDE OF RUSSIA

Written by: Roos & Frank

On our last day the breakfast was peaceful and nobody lost their bananas. Perhaps this had something to do with the beautiful weather and the fact we left at nine o' clock. Over the days we begun to understand the Russian culture a bit, not minding the strange looks or the sometimes idiotic driving anymore. After a very crowded bus drive to the Benois Business Centre we entered the building for our final company visit: Yandex, the more or less Russian version of Google. Our host of the day was Andrei, a young enthusiastic employee who just graduated in IT and is working in the machine learning department. Andrei told us that Yandex once started off as a small search engine that helped priests composing their sermon by searching the bible. Nowadays it is the biggest search engine of Russia and Belarus, rapidly expanding into Turkey, Ukraine and Kazakhstan as well. The office is quite reminiscent of Silicon Valley, very modern and playful with a relaxed at-

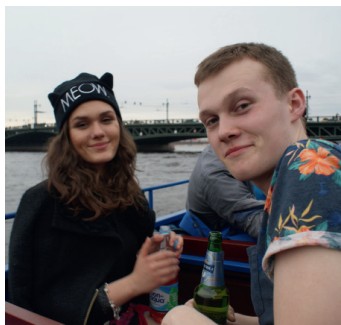
mosphere. The comfort of employees seems to be the number one priority here. When we are chased out of the conference room by a Yandex meeting, Andrei continues his story on the walls of the corridor because their walls were covered in white board paint. After introductions, Andrei tells us the interesting mathematical story behind their search algorithms and even touches on machine learning, his own topic. We notice that some of us are seriously considering a career here, especially after Andrei mentions the opportunity for internships. Of course we could not leave an IT-company building without receiving some goodies for our smart phones.



During the afternoon, the participants were having some free time to explore the final things of their liking in Saint Petersburg. The committee decided to gather everyone on the Palace Square across the Hermitage for a final activity: a canal ride at dawn. However, we did not foresee a rehearsal by the Russian military service for the commemoration of Saint Petersburg's liberation. Hundreds of army servants gathered on the square with tanks and other impressive military force. As we had gathered most of the people we walked to the pier for our canal ride. But at the same time the servants started marching, in an overwhelming pace. To get across the street safely many people had to literally jump through the marching servants, which led to funny pictures.



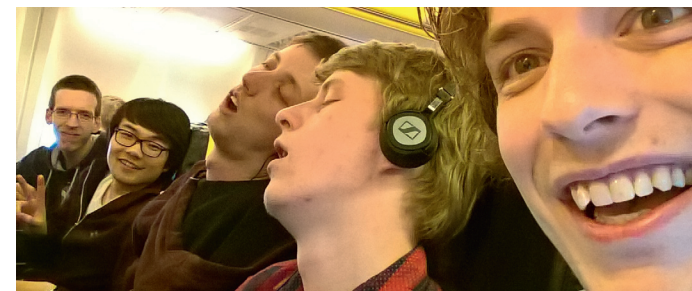
The canal ride itself was a very nice conclusion to our trip as we were able to see all the sights that we got familiar with over the past days. Totally FMF-style we pasted some stickers on bridges upon passing and we made some nice group pictures. Maxim concluded the trip with a heart-warming speech, thanking the organization for their efforts.



APRIL 29: THE WAY BACK HOME

Written by: The committee

For some of us, the last day changed smoothly from karaoke into packing our stuff and leaving. Thus, it was no surprise that the main activity during this day was sleeping or playing cards. In the morning and in the pouring rain, we headed to the bus and handed in the tickets at a shouting Russian lady from Ecolines. Luckily, we had no trouble or delay going over the Russian border and entered the beautiful Estonia with a spark of sunshine. It was also relaxing that we didn't have to bribe any shady gold selling taxi drivers anymore so we could immediately take the bus the airport. And then, finally, during our bus trip from Bremen to Groningen we managed to meet our beloved bus driver Dennie Jansen. He was a nice guy. Somewhere along the way, the microphone in front of the bus was handed over to our chairman Yannick who then gave an inspiring final speech. And with that, we finished this study trip and everybody went back to their beds in The Netherlands for a well deserved rest.



STICHTING GBE-FMF

The stichting GBE-FMF is affiliated with the study association FMF for (Applied) Physics, (Applied) Mathematics, Astronomy and Computing Science at the University of Groningen. Its objective is to organize scientific excursions for members of the FMF. Such an excursion is a great opportunity for students to explore far off places, learn about the local technological status quo and to experience a new culture first hand. The foundation recruits a committee to organize a long-term excursion abroad once every two years, such as the KBE this year. During the process of organizing, the board supervises and assists the committee with advice and tips.

The KBE committee organises trips within Europe on a biennial basis. Usually their destinations are limited to a one-day driving range. However, this was not the case for this committee. They wanted to go to Russia! We of course encourage original destinations and bold plans, but in practise it is quite a difficult task to organise a trip to far-away destinations. Mainly because of the limit budget of the committee. Nevertheless this committee was up for a

challenge.

And a challenge it was. Not only for committee, but also for us as a Foundation. There were quite a few topics which usually only come up when the big foreign excursion outside of Europe is organized. Topics such as: “What if the currency suddenly crashes?”, or “Should we reimburse vaccinations?”.

As the committee went along they managed to bypass most problems, or find alternative solutions. When there was enough certainty, the moment was there to announce the destination to the world. Or in this case the other students. We, from the foundation, were quite proud of what Yannick, Joop, Oscar, Bastian and Joost had managed to achieve. It requires quite some determination and skill to organize this on a limited budget. Kudos!

Another unique feature of this trip was the fact that there were no Foundation members which joined on the trip. Often it is the case that a few Foundation members cannot resist to join the trip, after gradually seeing the trip come together over the year. This year was a bit different as nobody unfortunately could join. Although this was not a real problem, as the trip was very successful.



Once again we are very proud of what you achieved and you really upped the ante for your successors. During the organisation of the KBE 2016 to Saint Petersburg the Foundation GBE-FMF consisted of:

Roald Ruiters (Chairman)

Ronnie Tamming (Secretary)

Klaas Hakvoort (Treasurer)

Karin Dirksen (General board member)

Jos Borger (FMF board representative)



FINANCES

The budget for this study trip is shown on the right. The participant fee was € 400,- which was paid by all the committee members and participants. During the study trip, pocket money is distributed among the participants in the form of Russian rubbles so that they are able to pay for basic needs such as food. The budget excludes major costs of the scientific staff members because this is subsidized by the RuG.



REVENUES

Participants fee € 10.000,00

Subsidies € 8.818,46

FMF
USS
VSI
Materials Science
JBI
SRON
Kapteyn Institute
KVI-CART
ZIAM
GUF
HEF
NNV

Donation € 0,08

Interest € 0,09

Total € 18.819,17



EXPENSES

Hostels € 2.075,75

Tallin and St. Pet. € 2.075,75

Transport € 6.918,82

Flight and baggage € 4.212,49

Bus Groningen-
Bremen € 1.000,00

Bus Tallinn-St. Pet. € 658,00

Local transport € 1.048,33

Preparations € 1.818,47

Visa € 858,72

Vaccinations € 959,75

Excursion € 6.376,27

Pocket money € 2.767,42

Program € 3.144,88

Participant shawls € 463,97

Organisation € 1.624,89

Committee costs € 116,17

Phone costs € 13,95

Financial transaction costs € 378,67

Participant meetings € 227,77

Gifts to speakers € 117,00

Promotion € 100,52

Printing costs € 184,05

End Report € 414,75

Interest € 0,03

Miscellaneous € 71,98

Reservation KBE14 € 4,44

Total € 18.819,17



FUNDERS



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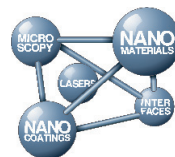
Joh. Bernoulli institute



kapteyn astronomical
institute



Netherlands Institute for Space Research



ACKNOWLEDGE- MENTS

Obviously, we couldn't have organized the entire KBE on our own. Many persons and organizations that facilitated the organization of the excursion deserve our firm gratitude.

Firstly, there is the Stichting GBE-FMF who supported us and passed on their knowledge and experience in organizing foreign excursions. Although we disagreed more often than we agreed, we had many fruitful discussions with the Stichting. Furthermore, we would like to thank the participants, who gave the trip the character the excursion got in our memories. Hopefully we showed the participants that organizing a KBE can teach one a lot and offers a great opportunity to put up a great excursion for its participants and we hope that (some of) the participants would consider to ever organize a KBE or GBE him- or herself.

Nederlandse Natuurkundige Vereniging

Tweedejaarsstudenten kunnen een jaar gratis lid worden. Alle andere studenten krijgen een flinke korting op de contributie.

De Nederlandse Natuurkundige Vereniging bestaat al sinds 1921 en is de vereniging voor natuurkundigen in Nederland. De NNV is voor alle fysici: studenten, fysici werkzaam in het bedrijfsleven, onderwijs, academia...
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Gezicht van de natuurkunde

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During the excursion, many employees of research institutes, universities and companies have helped us in organizing interesting and informative tours and lectures. Those include Jaan Kalda of Tallinn University, Kertu Kiinvald of Ericsson, Alexander Boukhanovsky, Elena, Faye and students of ITMO, Boris Kim of Optogan, Hans Wesseling of the Dutch Consulate, Alexey Scherbakov and Alexey Salasyuk of ITMO, Vladimir Smirnitskiy of Gazprom and Andrey of Yandex. Combined, they increased our knowledge of Turbulent Mixing, Radio-communication, dikes and traffic control, LED's, tensed international relations, ferroics and optics, Gaz transport and search algorithms. On top of that, they gave us a smell of the Russian way of doing business, science and education.

We would also like to thank Alexey Sudakov of Bee Pitron, for showing us the facility in Vyborg and also guiding us to the city close to the Russo-Finnish border. Moreover, our special thanks goes to Maria Mordovets, Maria Kachalova and Olga Ovechkina of the NISPB, who helped us on many issues. Visa support letters, visits to ITMO and Imtech and the contacts to our bus driver were all partly organized by the NISPB. Also, we want to thank Olga for the nice talk during our visit at NISPB. Furthermore, our special thanks go to our bus driver Viktor Mamistov, for providing us an

important lesson of life: "Gold is money". Another person we would like to show our gratitude to is "rooftop" Sacha, who not only showed us a risky but beautiful view of the city from above, but also impressed many of us with the impressive but sad story of his life. When Eva lost her passport in the bus to Bremen, Willem Blauw, our bus driver, made a huge effort to take care her passport was delivered to our Tallinn Hostel as soon as possible. We would like to thank him for ensuring Eva and Joost could proceed the excursion together with the rest of us so quickly.

Moreover, without the financial support of the following organizations, the excursion could not have proceeded: Nederlands Natuurkundige Vereniging (NNV), Zernike Institute for Advanced Materials (ZIAM), Groningen University Fund (GUF), Materials Science, Kernfysisch Versneller Instituut – Center for Advanced Radiation Technology (KVI-CART), Undergraduate School of Science (USS), Van Swinderen Institute (VSI), Kapteyn Institute, SRON, Johan Bernoulli Institute (JBI), Nationaal Instituut Kernfysica en Hoge EnergieFysica (HEF), and the Fysisch-Mathematische Faculteitsvereniging (FMF).

Finally, we would like to thank Jan de Boer who was initially our treasurer until the end of summer 2015.



