The Finnish Mathematical Society

A bit of history of Finnish mathematics: The Finnish Mathematical Society (FMS) celebrates its 150 years anniversary with a conference at the turn of November and December 2018. This makes it one of the oldest still functioning mathematical societies in the world, and the first of the Nordic sibling societies. In fact, the FMS was founded only three years after the London Mathematical Society and four after the Moscow Mathematical Society, the first such Society still in existence.

The founding meeting of the FMS took place on November 20, 1968. The chairman was the Dean of the Faculty of Mathematics and Natural Sciences, Physics professor Adolf Moberg. The only professor of mathematics at the time, Lorenz Lindelöf (1827–1908) was present, and he was naturally chosen as the first President of the new society. The regulations of the FMS were accepted in the meeting on December 2. The meetings of the society were held in the 'Old Studenthouse', after it opened in 1870. The building is located in the very center of Helsinki, at the corner of streets Aleksanterinkatu and Mannerheimintie.

The number of active research mathematicians in Finland in 1868 was very small. Before Lorentz Lindelöf, who acquired some fame in Europe through his work on calculus of variations and extremal problems, there was basically one internationally renowned mathematician, Anders Lexell (1740–1784), who worked in St Petersburg as Leonhard Euler's assistant, and was nominated his successor when Euler died in 1783.

Gösta Mittag-Leffler (1846–1927) made a brief visit (1877–1881) to professorship at Helsinki University before settling to Stockholm. However, his students included e.g. Hjalmar Mellin (1854–1933), whom he sent to Berlin for further studies under Karl Weierstrass, and this marked the beginning of complex analysis in Finland. Mellin is of course most well known for inventing and applying the integral transform that carries his name. Via Mittag-Leffler the Finnish connections to Swedish mathematics remained very close.

In 1903 Ernst Lindelöf (1870–1946), son of Lorenz Lindelöf, became the new professor of mathematics at University of Helsinki, having defended his thesis on Lie groups in 1893. He published important works also on plane topology and differential equations. However, toward the end of century he developed to a full-fledged complex analyst, and his papers between 1900–1910 made his one of the world leading researchers in complex analysis.

Although Lindelöf was clearly the internationally most famed Finnish mathematician during the first two decades of the last century, there were simultaneously several other mathematicians whose work has made a permanent mark on mathematics. We mention here Karl Sundman (1873–1949), who found convergent power series expansions to the solution of the famous 3 body problem of celestial mechanics, by applying an ingenious transformation of time. For this work he obtained the Pontécoulant prize of the French Academy of Science in 1913. In turn, Jarl Lindeberg (1876–1932) obtained the optimal condition for the validity of the central limit theorem in probability, a condition which now bears his name.

From around 1915 Lindelöf decided to concentrate most of his energy in teach-

ing and supervising his doctoral students. His most famous students include Pekka J. Myrberg (1892–1976), Frithiof Nevanlinna (1894–1977), Rolf Nevanlinna (1895–1980), and Lars Ahlfors (1907–1996) – Ahlfors himself cites both Lindelöf and Nevanlinna as his teachers. Together they created the famous Finnish school of complex analysis between the World Wars. On the other hand, with a conscious plan Lindelöf gave topics also outside his own research areas to some of his talented students, e.g. on algebra to Kalle Väisälä (1893–1968), since he wisely thought that this would benefit Finnish mathematics in the future.

Ernst Lindelöf himself acted as the secretary and shortly after also as the President for more than 4 decades basically taking care of all the duties related to the Society during that period. The manifold influence of Ernst Lindelöf to Finnish mathematics is indeed so strong that it is customary to call him the 'Father of Finnish Mathematics'. Many well-known Finnish mathematicians have also been involved with the FMS, like Pekka Myrberg, Rolf Nevanlinna, Olli Lehto,...

Without mentioning more names, let us note briefly that in the last half of the 20th century the complex analysis school moved to new directions like quasiconformal maps, potential theory, non-linear PDE's, and analysis in metric spaces. New fields also emerged as central part of the Finnish mathematical landscape, including (the list is certainly not comprehensive) algebraic and analytic number theory, numerical and applied analysis, functional analysis, discrete mathematics and mathematical coding theory, probability, mathematical logics, inverse problems, geometric measure theory, mathematical physics, mathematical biology, harmonic analysis....

Perhaps not all core areas of modern mathematics are strongly represented in Finland today, but arguably, for a small country this might be a sign of healthy amount of concentration. Further, one may happily note that today there is a considerable amount of collaboration between various research groups.

Today the FMS has around 300 members. At the time of founding there was only one Finnish university, University of Helsinki, but nowadays mathematical research is conducted in at least 10 different universities in Finland.

The official meeting of the FMS takes place yearly. In addition to making decisions and voting over various matters, the meeting features one invited talk that is often given by a freshly nominated new professor. The same President may serve for at most 5 years. The FMS publishes together with the Finnish Physical Society a Finnish speaking bulletin Arkhimedes with six volumes per year. Jointly with other Nordic Societies it is responsible for the journal Mathematica Scandinavica.

The Society awards the Lindelöf Prize for the best Master's Thesis in Mathematics in Finland, and will do the same for the best Doctoral Thesis starting in 2019. In addition, it awards the Mathematics Prize of the Society every second year for merits in promoting mathematics in a wider sense. This year the prize was given to Kirsi Peltonen for her work on creating projects that increase communication between arts and mathematics. In addition, the FMS organises mathematics competitions in Finnish schools and training for teams participating in the International Mathematics Olympiads.

The FMS has been traditionally supporting visits of foreign mathematicians by

organising the FMS Lectures, an activity which has been fruitful for Finnish mathematics, especially in past times. The lectures may take place in any mathematics department in Finland. Old abstract books witness FMS Lectures given by many famous previous century mathematicians, an early example being a visit by Marcel Riesz in 1926.

Every second year the FMS arranges a meeting for all Finnish mathematicians, 'The Finnish Mathematical Days', although the real practical duty lies on the shoulders of the local organisers. The venue of the meeting rotates between different departments around Finland. This year it was in Joensuu, and the next meeting will take place in Oulu in 2020.

The Society takes its turns in organising the Nordic Congress of Mathematicians, which is arranged together with the Nordic sibling societies. The last such meeting was held in Stockholm on March 2016, and the following Nordic Conference will take place at Aalto University in 2020.

The FMS also helps organize some special events and conferences, like 'Meeting of Young Mathematicians in Finland 2015', The largest special undertaking by far was hosting the ICM in 1978 in Helsinki.

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