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# BERN-FRIBOURG GRADUATE SEMINAR

a seminar for Master and PhD students

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Thursday 17<sup>th</sup> March, 2022: 17:15 - 18:00

Room 2.52, Perolles 08, Fribourg

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## Plateau's problem

### Abstract

The classical plateau problem asks to find the existence of a minimal surface bounded by a given closed curve in  $\mathbb{R}^3$ . A surface is called minimal if it minimizes the area among all possible surfaces having the same boundary. The problem was first formulated in 1760 by Joseph-Louis Lagrange and is named after Joseph Plateau, a Belgian physicist who experimented with soap films to answer this question. In 1930, the problem was solved independently by Jesse Douglas and Tibor Radó, who was awarded the Fields Medal for his work 6 years later. Since then, several generalizations of the Plateau problem have been formulated and solved, connecting and enriching different areas of mathematics.

In this talk, we will discuss the Plateau problem more formally and give an overview of the solution to the classical variant of the problem. Later, we will present various ways to generalize the Plateau problem. And, of course, we will also play with soap films.