

**David Waszek** (CNRS Paris, and a visiting scholar at St Andrews) will give the Pure Colloquium on **13 November**, 16:00–17:00 in Lecture Theatre D

**Title:** Felix Klein on the history of negative numbers

**Abstract:** How do we tell the history of mathematics and why? In this talk, I'll examine the way Felix Klein told the history of mathematics – in particular the history of negative numbers – in the first volume of his influential *Elementary Mathematics from a Higher Standpoint* (1908). This much-read and much-loved book, based on a lecture course, aimed at bringing research mathematics and school mathematics closer together, partly by drawing on the history of mathematics; translated into English in 1932, it had a significant impact on the teaching of mathematics in the 20th century. First, I'll review 19th-century conceptions of what negative (and complex) numbers actually are; in particular, I'll discuss the emergence of 'formal' conceptions of them, with particular reference to the work of Hermann Hankel, an important source of Klein's. I'll then turn to Klein's understanding and presentation of the history of mathematics, especially of negative numbers and the calculus. I'll show that his historical remarks were shaped both by his ideas on the 'proper' foundation of negative numbers and the calculus, and by his specific pedagogical aims. More broadly, I'll argue that Klein's case helps us understand the origins of some questionable clichés that remain prevalent in general histories of mathematics, such as the idea that the emergence of negative numbers in India came about through unrigorous formal manipulations.