

1041-01-87

**Tom Archibald\*** (tarchi@sfu.ca), Dept of Mathematics, Burnaby, V5A1S6. *Integral Equations: a “Revolution” in Mathematics in the early 20th Century?*

When, in 1900, Ivar Fredholm introduced his method for reformulating boundary-value problems as integral equations, it provoked a flood of interest internationally. On the one hand, it promised a theoretical approach that would provide for the first time a unified theory of partial differential equations, what Hilbert termed a “unified approach to *Schwingungslehre*”. On the other, it seemed to give a means of actually solving boundary-value problems that were of physical interest, most notably in elasticity and fluid mechanics. An international stampede of activity at the research and teaching levels followed, reminiscent of the surge of interest in catastrophe theory in the 1960s and 1970s, or in fractals and chaos somewhat later. In this paper we look at the reasons for this “fad”, and discuss what distinguishes really finding mathematical gold from a flash in the pan. The paper describes joint work with Rossana Tazzioli (Lille). (Received August 05, 2008)