

Smoluchowski's oeuvre: Its impact for physics and chemistry

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In my presentation I will make an attempt to cover the salient scientific achievement by Marian von Smoluchowski during his life which ended far too early with his sudden death on September 5, 1917 at his young age of only 45.

Being the godfather for what is nowadays known as “Stochastic Physics” he made ground-breaking contributions to (1) the theory of Brownian motion, (2) the theory of sedimentation (Smoluchowski equation), (3) the statistical nature of the Second Law, (4) experiments and theory of density fluctuations (critical Opalescence) and last but not least, during his final years of scientific creativity (5) his pioneering theory of coagulation and diffusion-limited reaction rate theory. These outstanding achievements present true gems which dominate the description of soft matter physics and chemical physics, as well as related areas, to these very days!