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**Rola Mariana Smoluchowskiego w ugruntowaniu poglądu
o korpuskularnej teksturze materii**

**The role of Marian Smoluchowski in the consolidation
of theory on corpuscular texture of matter**

SUMMARY

Born in 1872 Marian Smoluchowski after graduation from the Department of Physics at the University of Vienna, where he studied in the years 1890–1894, and after traineeship in Glasgow, Paris and Berlin laboratories, in 1899–1912 headed the Theoretical Physics Department of the University of Lvov. In 1913, he was appointed Head of the Chair of the Experimental Physics Department at the Jagiellonian University and in 1917 fell victim to the epidemics of dysentery.

Smoluchowski studied kinetic theories of matter, particularly Brownian motion; he derived mathematical formula for the relation between amount of average movement of colloidal corpuscles and time, temperature, viscosity and diameter of a corpuscle. Conclusions obtained from those formulas turned out to be in accordance with the results of experiments.

Smoluchowski also studied fluctuation of the number of colloidal corpuscles observable in the microscope visual field. The second law of thermodynamics said that the arrangement of material particles cannot spontaneously return to one of their former states but according to the mechanical model such a possibility existed. The fact that there were no observations of such reversible changes led to the conclusions that corpuscular and atomic theories were false and the only correct method was energetic explanation of physical phenomena. In 1904, Wilhelm Ostwald concluded that many phenomena could be explained with the use of both corpuscular and energetic theories, although he did not know any phenomenon which could be defined only by corpuscular concepts. Already next year, though, Albert Einstein proved that photoelectricity is exactly such a phenomenon. From 1906, Svedberg was taking measurements of average movement of a colloidal corpuscle in Brownian motion. His experimental results showed conformity with Smoluchowski's theoretical conclusions. On this basis already in 1908 Ostwald accepted the views on corpuscular structure of matter.

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