# 33rd M. Smoluchowski Symposium on Statistical Physics

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# Book of Abstracts

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## *Posters (continued)*

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# Moments of the Van Hove dynamic scattering law

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Studying the dynamics of a system at the atomic level provides important information about the behaviour of the system. For example, studying the dynamics of enzymes allows us to understand their biological function. Among the available techniques, studying the dynamics of a system by means of neutron scattering is of exceptional meaning, as neutrons scatter at the nuclei themselves. Van Hove's functions $G_s(r,t)$ and $G_d(r,t)$, as well its Fourier transforms $I_s(k,t)$ and $I_d(k,t$ contain all accessible information on the dynamics of the system. In order to find the function $I_s(k,t)$ for small times we use its lowest time derivatives taken at the time $t = 0$. These are also the moments of the scattering law $S_s(k,\omega)$. Moments of the odd orders are equal to zero, what results from the invariance of the mechanics equations with respect to the time inversion. We give even moments up to the tenth order.