Light scattering: an historical perspective

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The talk aims to provide an idea of how the discovery of the Raman effect (1928) emerged in a complex way in the contemporary context of the study of light scattering, which already constituted a very fertile area of intersection between four major fundamental areas of physics: structure of matter, statistical thermodynamics, classical electromagnetism, the new insights into the quantum behavior of radiation and matter. The focus will be primarily on Raman's investigations, starting from his early contributions on light scattering (with various collaborators) and proceeding then to his subsequent attempts to include the domains of X radiation and the Compton scattering, which Raman, shortly before the discovery of his new effect, had tried to save on classical grounds. As an example of the scientific and applicative fertility of the new effect, the talk will consider the main tracts of Raman investigations conducted in Pavia by Luigi Giulotto in the period 1936-1951.