



## Yves Quéré



**Date of Birth** 30 June 1931

**Place** Commercy (France)

**Nomination** 20 October 2003

**Field** Physics

**Title** Professor and Co-Chair of the Inter Academy Panel on International Issues

### Most important awards, prizes and academies

**Awards:** Officier, Légion d'honneur; Commandeur, Légion d'honneur. **Academic Appointments:** Chairman, Department of Physics, École Polytechnique (1987); Chairman, Senate of Professors, École Polytechnique (1989). **Academies:** Corresponding Member (1980), Member (1991) and Foreign Secretary (1993), Académie des sciences; Co-Chairman of InterAcademy Panel for International Issues (IAP) (2000, 2003); Pontificia Academia Scientiarum (2003). **Honorary Degrees:** Polytechnic University, Bucharest (1996); Science Academy of Belarus (2003).

### Summary of scientific research

Main domains of research, in experimental solid state physics, have been: 1) Determination of properties of point defects (like: vacancies, or interstitials) in metals such as silver, gold, uranium, etc. 2) Observation of radiation damage (neutrons, protons, heavy ions, etc.) in metals and ionic crystals. Study, in particular, of irradiation swelling and growth in nuclear materials. 3) Scientific leadership of a lab devoted to electronic and physical properties of Pu, Np, etc. 4) Study of the interactions between particles and solids, particularly in the case of Ion Channeling: first observations and theoretical models of dechanneling by crystal defects.

### Main publications

**Books:** *Irradiation effects in fissile materials*, with Jean Leteurtre, North Holland (1966); *Physics of Materials*, Gordon and Breach (1998); *La science institutrice*, Odile Jacob (2002); *La sagesse du physicien*, L'œil neuf (2005); *L'enfant et la science* (avec G. Charpak et P. Léna), Odile Jacob (2005); *La culture, en mémoire de France Quéré* (collectif), Odile Jacob (2006). **Articles:** Quéré, Y., Nakache, F., Évaluation du volume d'une pointe de fission dans l'uranium, *J. Nat. Nucl.*, 2, p. 203 (1959); Quéré, Y., Pham, F., Blin, J., Sur le gonflement exagéré dans les combustibles nucléaires (a theory of "Breakaway Swelling"), *Reactor Science and Techn.*, 17, p. 15 (1963); Quéré, Y., Interactions between quenched vacancies and oxygen in silver, *J. Phys. Soc. Japan*, 18 sup. III, p. 91 (1963); Quéré, Y., Dechanneling cylinder of dislocations, *Phys. Stat. Solids*, 30, p. 713 (1968); Quéré, Y., Couve, H., Radiography of platinum by means of channeled particles, *J. Appl. Phys.*, 39, p. 4012 (1968); Quéré, Y., Dechanneling of fast particles by lattice defects, *J. Mat. Nucl.*, 53, p. 262 (1974); Quéré, Y., Uggerhoj, E., The use of accelerators to obtain channeling micrographs of polycrystalline foils, *Phil. Mag.*, 34, p. 1197 (1976); Rullier, F., Quéré, Y., An experimental argument - in Nb<sub>3</sub>Ge - for the Labbé-Barisic-Friedel theory of superconductivity, *Phys. Letters*, 81 A, p. 232 (1981); Beuneu, B., Quéré, Y., Un interstitiel paraélastique dans le molybdène, *J. Physique Lettres*, 42, p. 465 (1981); Boucher, R., Quéré, Y., Sources d'énergie au plutonium pour stimulateurs cardiaques (energy sources for pacemakers), *J. Mat. Nucl.*, 100, p. 132 (1981); Quéré, Y., The virtues of a scientific education, *Nucl. Inst. Meth.*, B.164, p. 23 (2000); Beuneu, B., Quéré, Y., Paraelasticity in electron irradiated molybdenum, *Yamada Science Found.*, Univ. Tokyo Press, 156 (1982); Gély, M.H., Dunlop, A., Quéré, Y., Une paire de Frenkel éphémère dans l'iridium, *J. Physique Lettres*, 44, p. 219 (1983); Quéré, Y., Radiation effects in (old and new) superconductors, *Nucl. Instr. Meth.*, B33, p. 906 (1988); Rullier-Albenque, F., Bielska, H., Quéré, Y., Wallner, G., Müller, P., Defect production rates in normal and in superconducting states, *J. Nucl. Mater.*, 151, p. 245 (1988); Quéré, Y., Rullier-Albenque, F., Point defects in superconductors, *J. Nucl. Mater.*, 169, p. 19 (1989); Cohen, C., Dural, J., Gaillard, M.J.,

Genre, R., Grob, J.J., Hage-Ali, M., Kirsch, R., L'Hoir, A., Mory, J., Poizat, J.C., Quéré, Y., Remillieux, J., Schmaus, D., Toulemonde, M., Channeling of 2.4 GeV Ar ions in a germanium crystal, *J. Physique Lettres*, 46, p. 1565 (1985); Same authors, Electron-impact ionization and energy loss of 27 Me V u Xe<sup>35+</sup> incident ions channeled in silicon, *Phys. Rev. Lett.*, 63, p. 1930 (1989); Ganne, J.P., Quéré, Y., Intrinsic thermal expansion of point defects in metals, *Yamada Sc. Found.*, Univ. Tokyo Press, 232 (1992); Quéré, Y., Science et Droits de l'Homme, *Science et Liberté* (about A. Sakharov), Edition de Physique (1990); Quéré, Y., The Jahn-Teller effect: a pedagogical approach, *Acta Phys. Polon.* (1992).