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The ICM Emmy Noether Lecture 2022

Citation:

The 2022 ICM Emmy Noether Lecturer is Marie-France Vignéras, Professor Emeritus of the Institut de Mathématiques de Jussieu, Paris, France.

A native of France, Marie-France Vignéras grew up in Sénégal and subsequently studied at the Université de Bordeaux, where she completed her PhD in 1974 on the arithmetic of quaternion algebras, under the supervision of Jacques Martinet. With stints elsewhere in France, and at research institutes around the world, she has spent most of her career at the Université Paris 7 (now called IMJ at Université de Paris). She was a plenary speaker at the European Congress of Mathematics in 2000 and an invited speaker at the ICM in 2002. She is the recipient of the Médaille Albert Châtelet, the Silver Medal of the CNRS, the Humboldt Prize and the Petit d'Ormy Prize of the Académie des Sciences de Paris.

Marie-France Vignéras has been a leading number theorist for over four decades. Early career highlights include her 1978 proof of the existence of non-isometric closed hyperbolic surfaces with the same spectrum, as a consequence of her number-theoretic results. This answered negatively the question of Mark Kac, popularly posed as “Can one hear the shape of a drum?”, for hyperbolic surfaces. Much of her later work has centered around representation theory in arithmetics, with many deep contributions, from her proof of a mod- l local Langlands correspondence for $GL(n)$ compatible with the complex local Langlands correspondence, to her recent work classifying mod p representations of p -adic reductive groups. Through her work she has had a profound influence on development of the Langlands program and the representation theory of p -adic groups. She has also had a huge influence on the mathematical community, e.g., through mentoring, where notable PhD students include Jean-Loup Waldspurger and Jean-François Dat.