ANDREA BRAIDES

Andrea Braides was born in Udine, Italy, in 1961. He obtained his diploma thesis in 1983 at Scuola Normale Superiore (Pisa, Italy) under the supervision of Ennio De Giorgi. Successively he also got his PhD in Pisa (SNS). He later spent some time in Brescia (Italy) as assistant and associate professor up to 1995 and at SISSA (Trieste, Italy). From 2000 to the present he is full professor of Mathematical Analysis at University of Roma 2 Tor Vergata.

During his academic career Braides was visiting professor in many prestigious scientific institutes, such as Max Planck Institute for Mathematics in the Sciences (Leipzig, Germany), Tata Institute of Fundamental Research (Mumbai, India), Paris VI and Paris XIII, Standford University (USA), University of Minnesota (USA), Isaac Newton Institute (Cambridge, UK), California Institute of Technology (USA) and others.

He was invited speaker in many prestigious conferences. Among the most recent ones, we mention that he delivered a presentation of his results at the International Congress of Mathematician (Seoul 2014), 84th GAMM (2013), XVIII Symposium and Trends in Applications of Mathematics and Mechanics, Haifa (2012).

He is author and editor of several well-known and reputed books and lecture notes. He is also author of more than 100 publications published in top rated international journals and largely quoted in the existing literature.

The research fields of Andrea Braides are Calculus of Variations, Homogenization Theory, Multiscale analysis, Free-discontinuity problems, Continuum limits, Applications of Mathematics to Science and Technology.

In all these topics Braides gave important contributions. In particular, in one of his first papers he solved the homogenization problem for periodic energies on vector-valued functions. This problem was also attacked successively and independently by other well-known mathematicians. Later (in collaboration with L. Ambrosio) he faced the problem of the Gamma-convergence for interfacial functionals generated by free discontinuities. More recently he also presented the first approach, via Gamma-convergence techniques, of random discontinuities involving a combination of Percolation and variational problems. Other important contributions involve rigorous variational approaches to fracture mechanics, continuum limits and crystal dynamics via minimizing steps.
All these results have in common the originality of the approach and the richness of the subsequent developments.

Braides' approach to mathematics can be framed in the long-aged Italian mathematical tradition, in particular for the special attention he (as well as his mentor Ennio De Giorgi) paid to problems having a geometrical nature, and also to the link between abstract mathematics and real-world problems. A distinctive feature of the activity of Braides, indeed, is the fact that he systematically employs rigorous and sophisticated mathematical techniques to problems arising from the applications. Thus his activity is of interest not only in the framework of the pure Mathematics, but also in real Applied Mathematics.

For all exposed reasons the committee, entrusted by the Scientific Committee of the International Research Center MEMOCS with the responsibility of awarding the International Levi-Civita Prize, unanimously proposes Professor Andrea Braides as recipient of the 2015 edition.