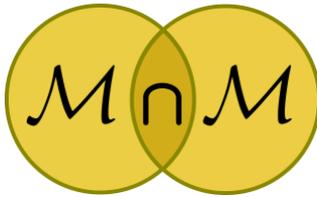


UNIVERSITÀ DEGLI STUDI DELL'AQUILA

M&MOCS



International Research Center on
MATHEMATICS AND MECHANICS
OF COMPLEX SYSTEMS

François Hild, CNRS Research professor at the Laboratoire de Mécanique et Technologie (LMT, ENS Paris-Saclay), was a former student of this institution in mechanical engineering. Holder of a PhD from the University Paris 6 and from the University of California at Santa-Barbara, François Hild conducted most of his research at LMT. Recently, he was awarded the CNRS 2017 silver medal for all his work in mechanics of materials and structures.

A unified framework for brittle fracture

François Hild was first interested in brittle fracture. He completely renewed the classical approach to make the ingredients of the underlying statistical theory bear fruit within a thermodynamically based and considerably broader mechanical framework. Thus, damage in composite materials, fatigue of materials, or dynamic fragmentation are areas where the unified framework was expressed, allowing a link to be made between the microscopic and macroscopic scales, in application fields driven by the statistics of extremes rather than by the average behavior.

Pioneer of image correlation

The second "period" of François Hild's work, in close collaboration with Dr. Stéphane Roux, concerns the revolution in experimental mechanics through imaging-based full-field measurements. In the correlation of digital images, original approaches were developed that use modeling tools to analyze mechanical tests. The way of performing "measurements" in the tests was renewed, then the tests themselves, by making an increasingly close link with the control of the test, with the description (CAD and FE) of the studied parts studied, with their numerical modeling, or with the identification of mechanical properties. At the same time, the notion of "image" has also flourished tremendously in different modalities, at different scales, in the third dimension via tomography, and in the fourth dimension via time series.

A strong academic and industrial impact

All this work has been carried out in very close collaboration with major industrial partners in the fields of energy, aeronautics and space, transport and materials, which testifies the strong importance of the developed approaches and their impact in very diverse fields of application.

These works have been the subject of more than 250 articles, not to mention the countless conference proceedings, book chapters or books, publications that enjoy very strong recognition (as shown by its h-index of 50+). Patents and software licenses also highlight the importance of intellectual property in these fields and consolidate, for example, the recent emergence of the start-up "Eikosim" resulting from the scientific production of his team.