



The quest for ultimate patterning tools and techniques – focused ion beams: Status, future applications and new ideas
(Keynote lecture, Session C2)

Jacques Gierak

Born on 12 Aug 1959 in Sedan (Ardennes) France – Married 2 children

Jacques Gierak is the Responsible of the activity ‘Ultimately Focused Ion Beams’ at the Laboratoire de Photonique et de Nanostructures (LPN-CNRS), he was the co-ordinator of the Nano-FIB project (*Nano-Fabrication with Focused Ion Beams G5RD-CT2000-00344*). He is involved in FIB research since 1984, as he joined the LPN laboratory now located in Marcoussis (France). He is graduated from the ‘Conservatoire National des Arts et Métiers’ Paris in the Physics-Electronics dept., owner of a DEA in instrumentation, and of a PhD thesis. The FIB systems developed at LPN-CNRS have all defined in each of the addressed applicative fields, the international state-of-the-art. Recently his team demonstrated sub-5 nm direct patterning capability. This is from far the best patterning performance ever achieved for a FIB system.

Keywords

- Innovation: He is the main author of several international CNRS patents and secrecy collaboration agreements signed with industrial actors that are related to FIB technology, ion sources and nanoscience-oriented instrumentation.
- Collaborative approach: He has a strong interest for true collaborative approach of emerging applications (national and international) with complementary expertises. His team is involved in several collaborations with leading research institutes and high-tech companies.

Career highlights:

- 1984 Joins CNRS. In charge of developing liquid metal ion sources (LMIS).
- 1990 Responsible for the development of a dual lens FIB system.
- 1996 Responsible for FIB activity at UPR020. World record for FIB etching (10 nm).
- 2001 Coordinator of EU project ‘Nanofabrication with Focused Ion Beam’ G5RD-CT2000-00344 (2001-2004).
- 2003 FIB world record brought to 8 nm.
- 2004 Recipient of CNRS ‘Crystal’ Award.
- 2005 Sub-5 nm FIB direct patterning of nanodevices demonstrated
- 2007 Leader ‘sub-nm FIB Project’

Publications and Patents

Author of more than 60 publications, 6 patents and more than 10 invited lectures. These lectures were given over the last 5 years in the most representative international conferences in the field of micro and nanofabrication.