

# PROCEEDINGS OF SPIE

## ***Spintronics III***

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*Editors*

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## Introduction

This 2010 Spintronics conference in San Diego, CA (August 2-4), is the third edition of a conference devoted to spintronics inside the well-known SPIE symposium. Approximately 50 renowned scientists participated in the meeting. The conference describes state-of-the-art developments in this rapidly evolving field via the presentation of fascinating aspects and original developments.

The symposium covered the basic topics in spin-dependent transport. Progress in spintronics applications were presented (memories, high-frequency generators, spin transistors, spin-Hall sensors, and spin Q-bits) and new experimental techniques have been proposed. The basic concepts of spintronics in metal, semiconductors, and molecular nanostructures have been the subject of many stimulating discussions.

Nine sessions covered the following topics: spin transfer (I and II), spin injection and coherence (I and II), diluted magnetic semiconductors, advanced device and techniques, multiferroics, spin-hall effects, and organic and molecular spintronics.

The striking results presented in previous years about very large spin-coherence in semiconductor and graphene for non-local geometry have been confirmed. Also, as for the preceding conferences Spintronics I and II, a large part of the presentations were devoted to the spin-transfer effects studied on various kinds of structures and observed with the help of different experimental techniques. The very promising magneto-mechanical techniques performed at the nanoscale have been presented for the first time in this context (keynote lecture). On the other hand, many discussions confirmed that the role of spin-orbit coupling is fundamental and still puzzling.

Overall, the conference was an invaluable opportunity for open exchange and stimulating discussions in a friendly atmosphere. The present proceedings include a significant number of these contributions thus providing extremely useful references.

We are grateful to SPIE, to the organizing committee, and to the authors that have made this conference a success.

**Manijeh Razeghi**  
**Henri-Jean Drouhin**  
**Jean-Eric Wegrowe**

