

# Okazaki Conference

## (a) The 79<sup>th</sup> Okazaki Conference Synthetic, Biological, and Hybrid Molecular Engines

(August 31–September 2, 2018)

**Organizers:** R. Iino (*IMS*), K. Kinbara (*Tokyo Tech*)

**Invited Overseas Speaker:** Z. Bryant (*Stanford Univ.*), O. Ces (*Imperial College London*), J. H. Choi (*Purdue Univ.*), P. Huang (*Stanford Univ.*), Y. Zhang (*Columbia Univ.*), G. Rapenne (*Nara Inst. Sci. Tech./Univ. Paul Sabatier, Toulouse*)

Synthetic and biological molecular machines have been extensively studied for a long time. However, these research

fields have advanced independently, although both molecular machines have complementary advantages such as flexibility in molecular designs and highly specific advanced functions. Furthermore, there must be a common physical principle between synthetic and biological molecular machines. In the 79<sup>th</sup> Okazaki conference, we discussed how we can cooperate and merge these two highly relevant research fields toward the creation of “molecular engines,” which efficiently and autonomously convert energy via mechanical motions.



## (b) The 80<sup>th</sup> Okazaki Conference Chirality-Induced Spin Selectivity and Its Related Phenomena

(May 15–18, 2019)

**Organizers:** H. Yamamoto (*IMS*), R. Naaman (*Weizmann Inst.*)

**Invited Overseas Speaker:** Ron Naaman (*Weizmann Inst.*), Helmut Zacharias (*Univ. Munster*), Ismael Diez Perez (*Kings College London*), Jie Song (*Shanghai Jiao Tong Univ.*), Jeanne Crassous (*Univ. Rennes 1*), Karl Heinz Ernst (*Empa*), Eric Vetter (*North Carolina State Univ.*), David Waldeck (*Univ. Pittsburgh*), Jean-Philippe Ansermet (*Ecole Polytechnique Federale Lausanne*), Michael Therien (*Duke Univ.*), Amnon Aharony (*Hebrew Univ.*), Ora Entin-Wohlman (*Ben Gurion*

*Univ.*), Vladimiro Mujica (*Arizona State Univ.*), Xu Yang (*Univ. Groningen*), Ai-Min Guo (*Central South Univ.*), Yossi Paltiel (*Hebrew Univ.*), Sandipan Pramanik (*Univ. Alberta*), Claudio Fontanesi (*Univ. Studi Modena Reggio*), Narcis Avarvari (*Angers Univ.*), Jeremy Levy (*Univ. Pittsburgh*)

Recently, molecular chirality has been found to be effective at filtering an electron spin. This chirality-induced spin selectivity (CISS) is applicable to a wide range of science and technology including spintronics, electrochemistry, biochemistry, optical separation, and computational chemistry.

## PROGRAMS

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Exchange of the research achievements and ideas between researchers from different research fields is the aim of this conference, which should be fruitful for further development of this new field. We counted 62 participants at the conference, including 20 invited speakers from overseas countries.

During the 80<sup>th</sup> Okazaki conference, participants have discussed how and why the CISS effect occurs in so diverse and different occasions, as well as its relationship towards related phenomena such as the Edelstein effect and magneto-chiral dichroism.

