Okazaki Conference

The 68th Okazaki Conference
From Aromatic Molecules to Graphene; Chemistry, Physics and Device Applications

Organizers: T. Enoki (*Tokyo Tech.*), T. Yokoyama (*IMS*), K. Tsukagoshi (*NIMS*), T. Kubo (*Osaka Univ.*), K. Kusakaba (*Osaka Univ.*)

Invited Overseas Speakers: PW. de Heer (*Georgia Tech.*), P. Esquinazi (*Univ. Leipzig*), F. Guinea (*Inst. Ciencia de Mater., Madrid*), R. Haddon (*Univ. California, Riverside*), S. G. Louie (*Univ. California, Berkeley*), A. F. Morpurgo (*Univ. Geneva*), K. Novosedlov (*Univ. Manchester*), A. Sood (*Indian Inst. Sci., Bangalore*)

The 68th Okazaki Conference was held on Jan. 21–23, 2009 in Okazaki Conference Center, in which we had about 90 of attendees including 38 invited speakers. The discovery of single sheet of graphite, which is called graphene, has triggered intensive studies on graphene and related materials. The electronic structure of graphene is described in terms of massless Dirac fermion, which makes it distinguished from traditional electronic systems. The interesting unconventional electronic feature of graphene is stimulating also in building electronic/spintronics device applications. Nanosized graphene called nanographene provides another intriguing issue due to the presence of edges. Indeed the electronic structure of nanographene is strongly dependent on the shape of the edges. The creating of nonbonding π-electron state (edge state) around the zigzag edges brings about unconventional nanoscopic magnetism and chemical reactivities. This situation is relevant to the issue of non-Kekulé structure with neutral radical state in aromatic hydrocarbon molecules in organic chemistry.

In this conference we were aiming at enriching the aspects of the issues on graphene by discussing comprehensively the physics, chemistry and device applications of graphene, nanographene and aromatic hydrocarbon molecules on the common basis. It was devoted to develop a new interdisciplinary area of graphene-related research by bridging between physics, chemistry and device applications.