

## SEMINARIUM RENTGENOWSKIE

Dnia 14 września 2016r. o godz. 11.00, w sali D Instytutu Fizyki PAN, odbędzie się seminarium rtg., na którym **prof. Yoshihiro Kubozono** z Research Institute for Interdisciplinary Science, Okayama University, wygłosi referat na temat:

### "Superconductivity by electron doping of two-dimensional layered materials"

#### Streszczenie:

Superconductivity has been induced by electron doping of two-dimensional layered materials such as iron chalcogenides, transition metal dichalcogenides and LaOBiS<sub>2</sub>. Two ways for electron doping are used in our study. One is a metal doping or an element substitution, while other is an electrostatic electron doping (or a field-induced electron accumulation). Recently, we doped FeSe<sub>1-z</sub>Te<sub>z</sub> ( $z = 0 - 1.0$ ) with alkali metal atoms using liquid ammonia technique, in which metal atoms are intercalated. A wide variety of metal-doped FeSe<sub>1-z</sub>Te<sub>z</sub> materials exhibiting very high superconducting-transition-temperature,  $T_c$ , are successfully prepared, and the  $T_c$  reaches 46 K at ambient pressure. With applying pressure, the  $T_c$  decreases slowly, but the  $T_c$  suddenly increases at greater than 15 GPa, implying a double-dome superconducting  $T_c - p$  phase diagram. Based on the pressure-dependent synchrotron X-ray powder diffraction, it has been found that the  $T_c$  can be scaled with FeSe<sub>1-z</sub>Te<sub>z</sub> layer spacing in a low pressure range, but the high- $T_c$  phase emerges without any structural change. In this lecture, the superconductivity of metal-intercalated transition metal dichalcogenides is also reported, and the superconductivity through the electrostatic electron doping is introduced in LaOBiS<sub>2</sub>.

Prof. dr hab. Krystyna Jabłońska