ICU **Re³build ICU Seminar** 2014AY

Seminar Renewable Energy and Energy Efficient Building at the ICU

Time: November 7th (Friday) 12:40-13:40

Place: Room H-314 (University Hall, 3rd Floor)

Title: From Heat to Electricity –Thermoelectric Materials as New Energy Sources /

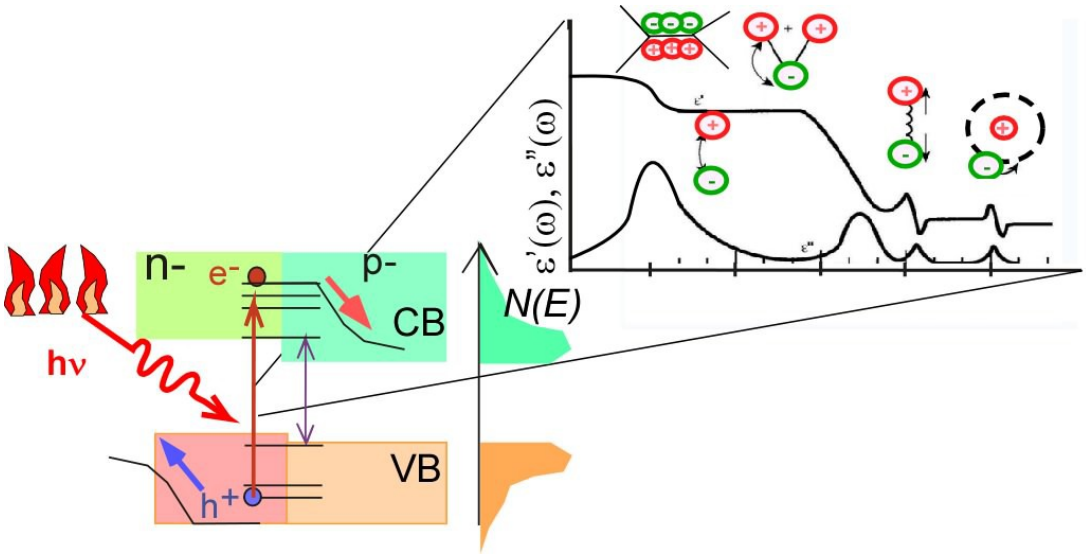
熱から発電・新エネルギー源になる熱電変換材料 (講演は英語で発表される)

Speaker: Prof. Dr. Wilfried Wunderlich, Tokai Univ., Fac. Engineering /

東海大学工学部材料学科大学院　ブンダリッヒ・ビルフリド教授

The pressing problem of CO_2 increase and climate change requires the search for new energy sources such as the thermoelectric power generators (TEG), which can turn waste heat, which is almost everywhere, into usable electricity when operating at high temperatures. The Seebeck effect is known since 1821 as the occurrence of voltage, when a suitable material is heated on one end and cooled on the other. Applications are thermometers, Peltier coolers, and as electricity generators, with increasing popularity and increasing variety of devices, such as fry-pan, boots, watches, hot-spring power generator, refrigerators, air coolers, etc. While TEG is still one of the expensive energy sources, the worldwide installed power has already reached about 5 GW.

The principle of thermo-electrics can be compared to solar cells, but with much smaller energy. Another explanation is the opposite mechanism as the electromagnetic resonators in portable phones: Atoms in motion are converted into electricity. Further improvement is a great challenge for frontier physicists.



Anybody, especially students, are welcome. Please bring along your lunchbox.

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Access: http://www.icu.ac.jp/about/access/

Campus Map (Bldg. No. 1!): http://www.icu.ac.jp/about/campus/

Important note to students: All students are welcome to attend the seminar. But please note that different from the NS Forum or Functional Science seminars, the seminar will not give you any ICU course credits.