**Short Biography & Abstract of Keynote Speakers or Lecturers for the AC21 International Graduate Summer School (AC21 IGSS)**

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<th>Name:</th>
<th>WANG Ruzhu</th>
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<td>Position:</td>
<td>Professor, Director-Institute of Refrigeration and Cryogenics</td>
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<td>Affiliated institution:</td>
<td>Shanghai Jiao Tong University</td>
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**Short Biography:**  
WANG Ruzhu (R. Z. Wang), born in Dec. 1964, graduated from Shanghai Jiao Tong University in 1984 and 1987 for his bachelor and master degrees, he got PhD from Shanghai Jiao Tong University in 1990 in the field of Refrigeration and Cryogenics (he was a sandwich PhD student between SJTU and Free University Berlin during April 1988 to March 1990), he was promoted as associate professor in Dec. 1992, and professor in Dec. 1994. He had been appointed as the director of Institute of Refrigeration and Cryogenics, Shanghai Jiao Tong University since 1993.

Prof. Wang has published more than 300 journal papers, about 200 of them are in international journals. He has written 5 Books regarding Refrigeration Technologies. His major contributions are adsorption refrigeration, heat transfer to superfluid helium, heat pumps, CCHPs and solar energy systems. Currently he had a deep involvement on green building energy systems. Prof. Wang was elected as one of the top one hundred outstanding professors in China Universities by MOE China in 2007. He was awarded as model teacher of China in 2009.

Prof. Wang have been appointed as deputy Editor-in-Chief for the international journal Energy, Associate editor of Solar Energy. In the last ten years, he was invited to give plenary lectures in international conferences for more than 10 times.

**Title of your keynote speech/lecture:**  
**Energy Systems for Green Buildings**

**Abstract of your keynote speech/lecture:**  
A green building needs good energy systems which supply heating, cooling, hot water and even electricity etc. to the indoor space. Low energy consumption, environmental friendly function and comfortable indoor environment are key factors for a green building. Various energy systems such as solar heated hot water supply, BIPV for electricity supply, solar heating, solar cooling, various heat pumps, CCHPs, novel HVAC indoor terminals integrated in building and even smart grid have been shown to be effective energy systems for green buildings. Based upon detailed researches and demonstration projects, a new green building with various high efficient energy systems have been constructed at the SJTU. These energy systems have been tested and evaluated for long time operation.

The working principals, demonstration practices and research results are presented in this lecture, this may help people to understand clearly how green building energy systems were designed and operated.

**Keywords:** Green Building, Solar Energy, heat pump, CCHP, Smart grid