


## Requests for Collaboration

<p><b>Name:</b> Masatoshi Nishioka, Dr. Eng  <b>Current position:</b> Professor  <b>E-mail address:</b> nishioka@eng.osaka-cu.ac.jp</p>	
<p><b>Research Interests</b></p> <ul style="list-style-type: none"> <li>● Development of directional reflector with retroreflective characteristics</li> <li>● Effective operation technique for air conditioning system with aquifer thermal storage</li> </ul>	
<p><b>Creative Achievements in The Application of New and Existing Science and Technology</b></p> <p>(1) Retroreflective surfaces are widely used in order to increase visibility of road signs at night. To the conventional usage, we propose the retroreflectors on building envelopes for solar radiation reflection. This technique is expected to mitigate urban heat island phenomenon by improve net solar reflectivity of the urban surfaces. BRDF(Bidirectional Reflectance Distribution Function) is measured some types of specimen, and the radiant properties are analyze by the numerical simulation using Monte Carlo path tracing method.</p> <p>(2) Aquifer thermal energy storage air conditioning system(ATES) is expected to contribute to energy conservation by using ground thermal energy and waste heat from buildings. Estimation of the effects of ATES and the influence of various conditions such as heat storage temperature in winter and operation methods in summer on energy conservation are the topics of our study. We built ATES simulation model by the simulation tool using Modelica language and verify the model by the experimental results.</p>	
<p><b>Technology (Product, Process, Device, Service etc.) That I Want to Request for Collaboration</b></p> <ul style="list-style-type: none"> <li>● Surface microfabrication technology of metals ,resins and ceramics</li> <li>● Knowledge of thermal and fluid transfer phenomena in aquifer. Long-term operation technology of well</li> </ul>	
<p><b>A List of 5 Key Publications</b></p> <ul style="list-style-type: none"> <li>• Cascade Energy Use of Chilled Water for Air-Conditioning, Yoshiki SHIMIZU, <u>Masatoshi NISHIOKA</u>, Minako NABESHIMA, Masaki NAKAO, Hisato ODA, <i>Transactions of the Society of Heating, Air-conditioning and Sanitary Engineers of Japan</i>, No.253, 1-8 (2018), in Japanese</li> <li>• Study on Thermal Energy Storage Air Conditioning System utilizing Aquifer; Performance Study for the Air Conditioning System Combined Direct Use and Heat Source Use on Seasonal Thermal Energy Storage, Shimpei YAMAMOTO , <u>Masatoshi NISHIOKA</u>, Minako NABESHIMA, Masaki NAKAO, Yasuhisa NAKASO, Masanobu SAKAI, Kazuhiro NAKAMURA, <i>Transactions of the Society of Heating, Air-conditioning and Sanitary Engineers of Japan</i>, No.248, 1-9 (2017), in Japanese</li> <li>• Reducing Effect of Downward Reflected Solar Radiation from Folded Plate Wall, Kaoru Furubayashi, <u>Masatoshi Nishioka</u>, Minako Nabeshima, <i>Transactions of the Society of Heating, Air-conditioning and Sanitary Engineers of Japan</i>, No.247, 1-7 (2017), in Japanese</li> <li>• NUMERICAL STUDY ON SPECULAR SOLAR REFLECTORS AIMED AT INCREASING SOLAR REFLECTIVITY OF BUILDING ENVELOPE, <u>Masatoshi Nishioka</u>, Craig Farnham, Minako Nabeshima, Masaki Nakao, <i>Proceedings of Building Simulation 2013:12th Conference of International Building Performance Simulation Association</i>, 25-30 August, 3040-3045 (2013)</li> <li>• PARAMETERIZATION OF THE SOLAR RADIATION ABSORPTION CHARACTERISTICS ON GROUPS OF BUILDINGS, <u>Masatoshi Nishioka</u>, Yuko Hotta, Minako Nabeshima, Masaki Nakao, <i>Proceedings of Building Simulation 2011:12th Conference of International Building Performance Simulation Association</i>, 2778-2784 (2011)</li> </ul>	