


## Request for Collaboration

<p><b>Name:</b> Hiroyuki IYOTA, Ph.D.  <b>Current position:</b> Professor  <b>E-mail address:</b> iyota@eng.osaka-cu.ac.jp</p>	
<p><b>Research Interests</b></p>	
<ul style="list-style-type: none"> <li>● Food engineering and related technology</li> <li>● Superheated steam drying and its mathematical modelling</li> <li>● Humidity measurement to improve product quality and productivity</li> </ul>	
<p><b>Creative Achievements in The Application of New and Existing Science and Technology</b></p>	
<p>In the industry, many types of heating and cooling machines are used in thermal processes for the manufacture of water-containing products. These processes require improvements in product quality and productivity, energy saving, and environmental burden reduction. To meet these requirements, we are developing methods and devices to optimize the thermal process with the following sub goals:</p> <p>(1) Improvement of the technology for using superheated steam for drying, cooking and thermal processes, taking advantage of high temperature steam and air of various temperatures and humidity and considering the thermal properties of materials. [1]-[3]</p> <p>(2) Development of a humidity sensor and a standard humidity generator for high humidity range. [4]</p> <p>(3) Color and glossy measurements using digital camera, in-situ spectroscopy, and a thermal monitoring system for superheated steam process analysis. [5]</p>	
<p><b>Technology (Product, Process, Device, Service) I Want to Request as Collaboration</b></p>	
<ul style="list-style-type: none"> <li>● Researchers/Engineers from food science and engineering, nutrition, agricultural chemistry, metrology, and image analysis, and other fields for joint research/development project.</li> </ul>	
<p><b>A List of 5 Key Publications</b></p>	
<p>[1] Simulation of Superheated Steam Drying Considering Initial Steam Condensation, <u>Hiroyuki IYOTA</u>, Nobuya NISHIUMURA, Masamichi YOSHIDA and Tomohiro NOMURA, <i>Drying Technology</i>, <b>19</b>(7), pp.1425-1440 (2001).</p> <p>[2] Drying of Sliced Raw Potatoes in Superheated Steam and Hot Air, <u>Hiroyuki IYOTA</u>, Nobuya NISHIMURA, Takahiro ONUMA and Tomohiro NOMURA, <i>Drying Technology</i>, <b>19</b>(7), pp.1411-1424 (2001).</p> <p>[3] Effect of Time-Dependent Humidity Profiles from Air to Superheated Steam on Drying of a Wetted Starch Sphere, <u>Hiroyuki IYOTA</u>, Tamotsu INOUE, Junko YAMAGATA and Nobuya NISHIMURA, <i>Drying Technology</i>, <b>26</b>(2), pp.211-221 (2008).</p> <p>[4] Development of Psychrometer using Porous Ceramic Probe for Improved Utilization of Superheated Steam, <u>H. IYOTA</u>, K. MIMURA, H. YOSHIOKA, T. TSUJIOKA, M. TANAKA, N. UESUGI, <i>Abstracts Book of Symposium on Temperature and Thermal Measurements in Industry and Science (TEMPMEKO 2016)</i>, pp.280 (June 2016, Zakopane, Poland).</p> <p>[5] Color Measurement Methods for Optimization of Oven Operation (Baking of Sliced Bread with Superheated Steam and Hot Air), <u>Hiroyuki IYOTA</u>, Hideki SAKAI and Yusuke MAMIYA, <i>Food Science and Technology Research</i>, <b>19</b>(6), pp.939-947 (2013).</p>	