

研究タイトル: 省エネとスマートエネルギーによる 地域環境の再生と地域社会の活性化



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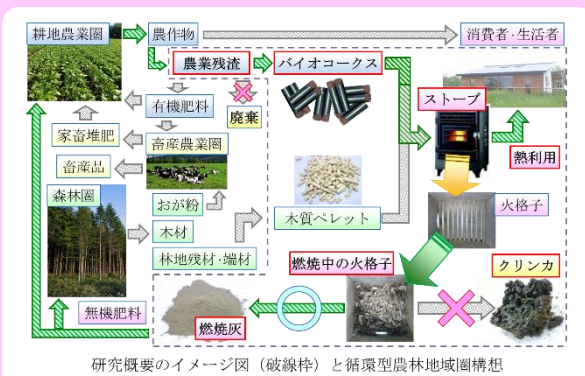
キーワード: 再生可能エネルギー, 省エネ, 石油代替, エネルギー変換, 環境影響・経済性評価, 植物工場, ICT

技術相談
提供可能技術: バイオマス直接熱利用、クリンカ(溶融灰)、資源循環型地域社会、環境保全、燃焼、高効率、低排出ガス、安全工学、防災、代替エネルギー、バイオガス、地域社会、FEMS、住環境、HEMS、太陽エネルギー、スマートエネルギー、二酸化炭素施肥など

研究内容:

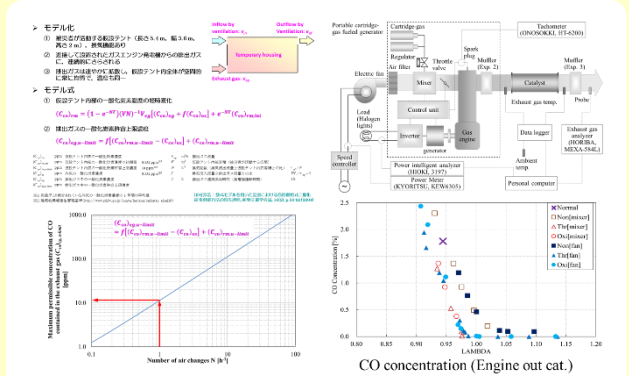
① バイオマスの利活用

再生可能エネルギー、燃焼灰、資源循環、固形燃料、環境保全



② 内燃機関の排出ガス対策

燃焼、低排出ガス、安全工学、防災、高効率、バイオガス



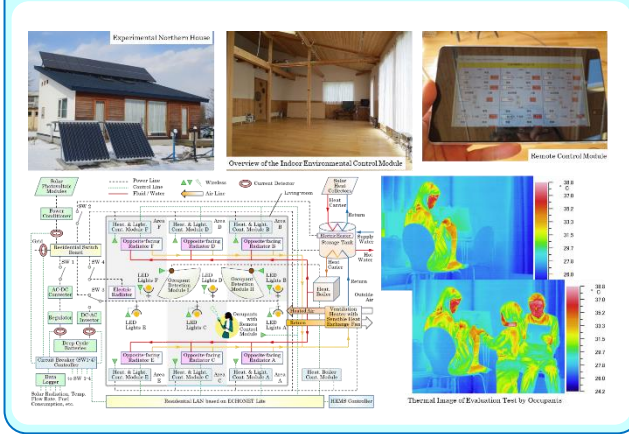
③ 地域社会と農業のスマートエネルギー化

植物工場、地域社会、省エネ、低排出ガス、FEMS、ICT



④ 住環境のスマートエネルギー化

住環境、省エネ、HEMS、ICT、太陽エネルギー



提供可能な設備・機器:

名称・型番(メーカー)

完全人工光型植物工場研究施設:TAF-13(エスペックミック)12.7m ²	太陽光利用型植物工場研究施設:TPFS-14(エスペックミック)13.5m ²
エンジンベンチ, 分析計:DA10UW(FC デザイン), PG-300(HORIBA)	排ガス測定器: MEXA-584L(HORIBA), testo340(testo)
赤外線サーモグラフィ:H2640(NEC・Avio)	北方型実験住宅:木造軸組構法 66.24m ²

Title of the study:

Revitalization of Environment through Energy Conservation and Smart Energy

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Status	Professor, Ph.D., P.E.Jp		
Affiliations	The Japan Society of Mechanical Engineers, The Japanese Society for Experimental Mechanics, The Japan Institute of Energy, Japan Society of Energy and Resources, Japan Solar Energy Society, The Japan Carbonization Research Society, Combustion Society of Japan, The Society of Automotive Engineers of Japan, SAE International, Japanese Society of Agricultural, Biological and Environmental Engineers and Scientists		
Keywords	Renewable Energy, Energy Conservation, Alternative Energy, Energy Conversion, Energy Efficiency, Environmental Impact, Plant Factory, ICT		
Technical Support Skills	Biomass Combustion, Clinker, Zero-waste Community, Environmental Conservation, Combustion, Low-emission, Safety Engineering, Disaster Prevention, Biogas, FEMS, HEMS, Solar Energy, Smart Energy, Carbon Dioxide Fertilization		



Research Contents <https://researchmap.jp/read0152593/?lang=en>

1. Research on the Efficiency Improvement of Batch-type Small-diameter Bio-coke Production Process (in Japanese), Journal of JSEM, 19(3) 203-208, Oct, 2019. [Peer-reviewed]
2. Studies on Producing of Woody Biomass Fuel and Utilizing of Combustion Ash - Production of Small Diameter Bio-coke and Characterization of Blend Firing - (in Japanese), Journal of Smart Processing, 7(2) 51-56, Mar, 2018. [Peer-reviewed]
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4. A Study of Home Energy Management Systems for Northern Houses (in Japanese), Journal of the Japan Institute of Energy, 96(4) 112-120, 2017. [Peer-reviewed]
5. Study on Clinker Formation Mechanism of Biomass Solid Fuel (in Japanese), Journal of Smart Processing, 5(2) 140-144, Mar, 2016. [Peer-reviewed]
6. Development of Solar Heating using Information and Communication Technologies for Northern Houses, Proceedings of SHC 2013, Freiburg, Germany, Energy Procedia, 48, 588-597, 2014. [Peer-reviewed]
7. Research on a Low Energy Consumption House using Renewable Energies and Information and Communication Technologies, International Symposium on Innovative Materials for Processes in Energy Systems (IMPRES) 2013 Proceedings, 299-303, Sep, 2013. [Peer-reviewed]
8. Development of Hydrogen Internal Combustion Engine System for Heavy Duty Vehicles (in Japanese), Transactions of Society of Automotive Engineers of Japan, 42(4) 909-914, Jul, 2011. [Peer-reviewed]
9. Development Project of a Multi-cylinder DISI Hydrogen ICE System for Heavy Duty Vehicles, SAE Technical Papers, 2010. [Peer-reviewed]
10. Summary and Progress of the Hydrogen Ice Truck Development Project, SAE International Journal of Commercial Vehicles, 2(1) 110-117, 2009. [Peer-reviewed]
11. Application Problem of Biomass Combustion in Greenhouses for Crop Production (in Japanese), Journal of High Temperature Society, 33(1) 14-20, Jan, 2007. [Peer-reviewed]
12. Evaluation of Cogeneration System Applied to Greenhouses (in Japanese), Journal of the Japan Institute of Energy, 85(5) 390-397, 2006. [Peer-reviewed]

Available Facilities and Equipment

Artificial Light Type Plant Research Facility / TAF-13	Solar-powered Plant Factory Research Facility / TPFS-14
Engine Bench & Gas Analyzer / DA10UW & PG-300	Exhaust or Flue Gas Analyzer / MEXA-584L, testo340
Thermography / H2640 (NEC/Avio)	Experimental Northern House / 66m ²