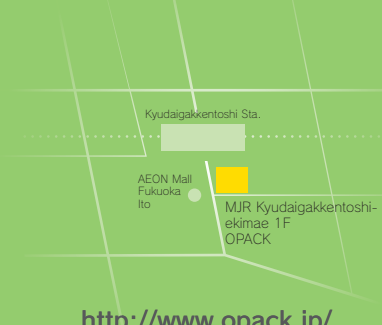


opack Mail

Organization for Promotion Academic City by Kyushu University



<http://www.opack.jp/>

~2014 OPACK Project Policy~

This year marks the 10 year milestone for OPACK.

Our project began ten years ago, in 2005, with the relocation of the department of engineering and technology to the new campus. This was followed by the development of the center zone and the addition of several research facilities. Today Academic City has grown into an active center for approximately 11,000 students and faculty members.

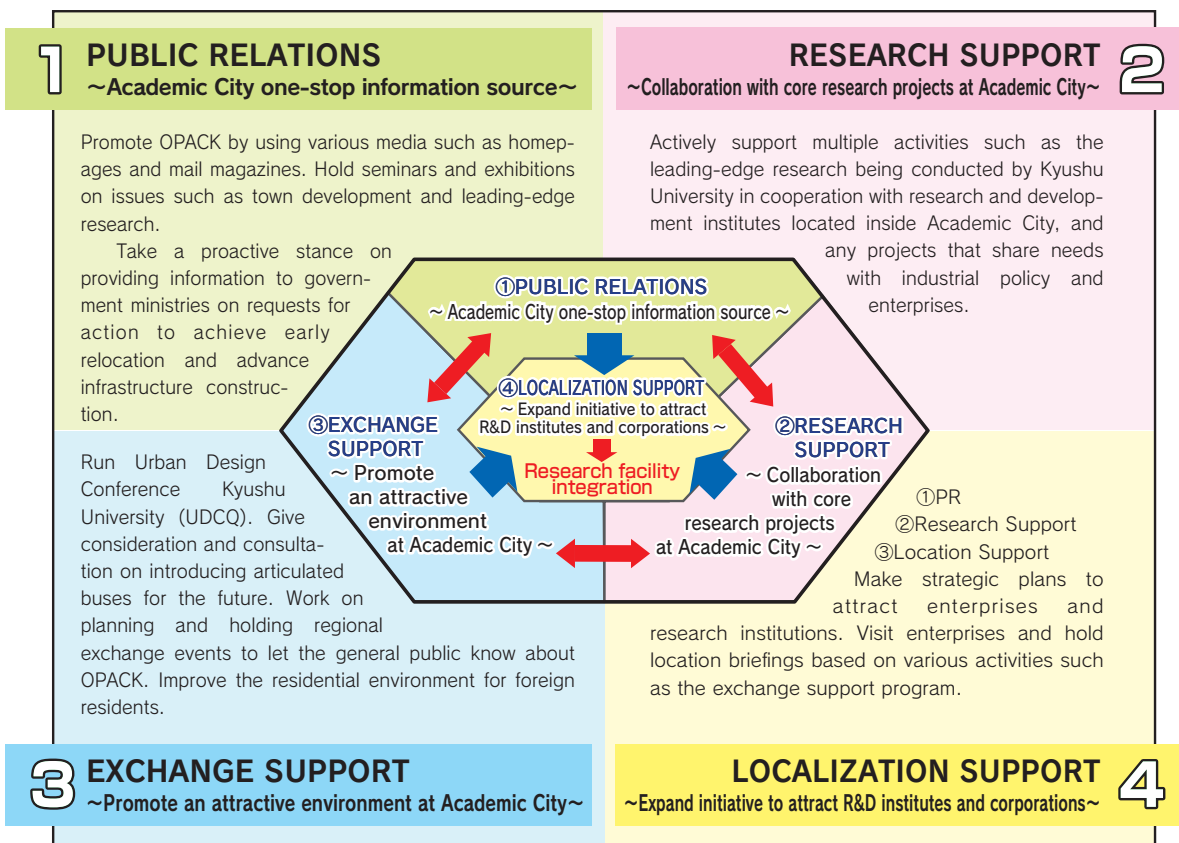
The relocation project has currently reached the final stages. The residential environment including the division of science section and the international village is moving toward completion and the area is steadily evolving into an academic hub.

Construction continues in and around Kyushu University Academic City as land is rezoned to better upgrade the urban infrastructure, residences and residential services. Housing complexes and academic-industrial alliance centers, such as the Center for Organic Photonics and Electronics Research (i³-OPERA), Hydrogen Energy Test and Research Center (HyTRec), and Fukuoka Industry-Academia Symphoncity, continue to sprout up near the campus entrance in the Motooka Area and Ito Research Park as a base for attracting enterprise. All the foundations of urban development have been put into place in Academic City to create an appealing environment where the three pillars of government, industry and academia can stand as one.

OPACK is planning to accelerate these activities and focus on the following projects in 2014 as it continues to develop Academic City.

OPACK Town Development Goals 1.A town with research status 2.A town where the new sprouts 3.A commodious town for research development

OPACK endeavors to integrate research by developing an attractive environment for enterprises and research institutions such as creating a one-stop source for information, collaborating in research projects and promoting urban development in cooperation with academia and local enterprises.



For more information, please visit our website at (<http://www.opack.jp/>).



“nano tech 2014” Exhibition

We put up a display booth at “nano tech 2014” Exhibition held from January 29th to 31st, 2014 at Tokyo Big Site. A number of nanotechnology related enterprises participated in addition to universities and research institutions. OPACK has continuously participated in this event since 2010 as an integrated forum to introduce research conducted by Kyushu University while showing the appeal of OPACK.

We set up display panels, showed DVDs and distributed flyers at our booth to explain what OPACK is, and provide information about our research institutes and the localized community we are making. We also had researchers available full-time to introduce budding research conducted at our associate exhibition groups: Center for Organic Photonics and Electronics Research (OPERA/Prof. Chihaya Adachi), Institute of Systems, Information Technologies and Nanotechnologies (ISIT) and Industry-University-Government Collaboration Management Center of Kyushu University.

Our booth welcomed as a total of roughly 1,500 visitors during the three days and we introduced cutting-edge research conducted by Kyushu University and showed the appeal of OPACK.



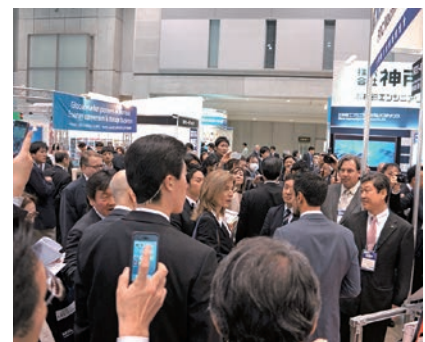
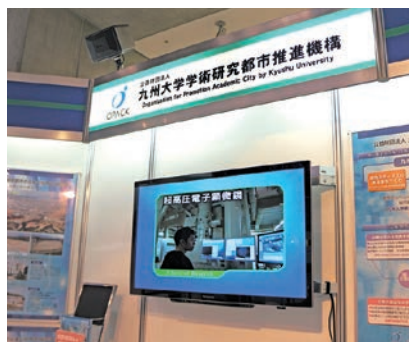
Picture: the exhibition

“FC EXPO 2014” Exhibition

We put up a display booth at “FC EXPO 2014” Exhibition held from February 26th to 28th, 2014 at Tokyo Big Site. This exhibition is the world’s largest international exhibition in the field of hydrogen and fuel cells. PV EXPO and Smart Grid EXPO were also held at the same time; there were approximately 67,000 visitors in total, making it highly successful event.

We were able to introduce our pioneering work on hydrogen energy and OPACK integration by combining Kyushu University International Research Center for Hydrogen Energy (HYDROGENIUS) and Hydrogen Energy Test and Research Center (HytReC) as well as other presentations into a joint exhibition with Fukuoka Strategy Conference for Hydrogen Energy at the ‘Fukuoka Pavilion Booth’.

In our booth, we showed the appealing points of Academic City through panel reports of the combined status of hydrogen energy research institutions in the area, the local status of the other field research institutes, the locations of enterprise sites, and video introducing the area. We also distributed and explained brochures.



Picture: our booth

“Ultrahigh Voltage Electron Microscope Forum” Study and Technology Panel

OPACK oversaw the “Ultrahigh Voltage Electron Microscope Forum” Study and Technology Panel and opened powerful equipment such as an ultrahigh voltage electron microscope to private enterprises. The seminar for the forum was held at Kyushu University Ito Guest House in cooperation with Kyushu University on March 7th, 2014.

The photographic negative film used for many years to record ultrahigh voltage electron microscope has stepped down from the main role and the CCD camera and CMOS camera have become the mainstream. However, new technology under development today that imports electron directly into an electron medium is being called the ultimate recording device. Some of the new recording device technology was introduced at the forum. In this seminar, all participants, including specialists on electron microscope analysis, Kyushu University professors, forum members and seminar lecturers had a an active exchange of views.



Picture: The forum

TADF International Workshop

Professor Chihaya Adachi of the Kyushu University Organic Photonics and Electronics Research (OPERA) led the ‘TADF International Workshop’ at ACROS Fukuoka on March 14th, 2014 in cooperation with Kyushu University. As a culmination of the Funding Program for the World-Leading Innovative R&D on Science and Technology (FIRST Program), results from related research programs on the next-generation organic electro-luminescence, Thermally Activated Delayed Florescence (TADF), which is a topic of interest worldwide,

were presented.

At the OPERA meeting, we exhibit the trial products of organic electro-luminescence panels and demonstrated cutting edge technology related to luminescence materials and the high innovation capability of Kyushu University.



Picture: The workshop



Picture: Electro-Luminescence panel samples



Announcement

The 10th Kyushu University Academic City Information Exchange Seminar

We are holding a seminar under the theme of “Kyushu University Ito Campus Development and Industry-Academia Cooperation.

Date: August 7th, 2014
Seminar: PM 2:00 – 5:20
Exchange: PM 5:30 – 6:30
Place: Hotel Nikko Fukuoka
Capacity: 80 guests

For more details, please visit our website or contact OPACK.

The 2nd Ito Nigiwai Festival

Ito Nigiwai Festival started last year under the theme of “Be the string (*ito*) that connects people to people, people to community and community to community.” We hope that everyone in the neighborhood will come join us for some fun.

Date: September 28th, 2014
Place: JR Kyushu University Kenkyu Toshi Station - South Exit Plaza, Saitopia (SEIBU Regional Community Center), AEON Fukuoka Ito (not fixed)

For more information about the festival, please visit our website at (<https://www.facebook.com/itonigi>).



Picture: The 1st Ito Nigiwai Festival

Subscribe to our e-mail Newsletter

OPACK e-mail newsletter offers the up-to-date information about OPACK as well as events in Academic City area, activity information from the university, industry-academia cooperation projects, and research institutes.

How to subscribe:

Please visit (<http://www.opack.jp/>) for a subscription application form.



Fukuoka Prefecture

~Northern Kyushu Automobile Industries Asia Advanced Hub Promotion Forum~

Fukuoka prefecture is working on promoting 'Northern Kyushu Automobile Industries Asia Advanced Hub Promotion Forum' through industry-academia-government collaboration. Approximately 800 affiliates met at the 'Northern Kyushu Automobile Industries Asia Advanced Hub Promotion Forum' held in Kitakyushu.

Governor Ogawa, in his address, announced that he would bring all the regional power together and proceed toward the realization of developing new generations of vehicles such as fuel-cell-powered vehicle and the supporting manufacturing base framework in anticipation of the release of fuel-cell-powered vehicles scheduled for next year. We then had a special lecture on fuel-cell-powered vehicles, an informative speech on the business deployment strategy for each automobile maker and the working reports toward enhancement of competitiveness by local enterprises.



Picture: The forum

<Northern Kyushu Automobile Industries Asia Advanced Hub Promotion Concept>

Fukuoka prefecture set goals to 'Integrate internationally competitive enterprises' and 'Build a manufacturing base to become Asia's leading automobile developer' and is working towards further growth of the northern Kyushu automobile industries.

Fukuoka City

~Gakuen Dori – Kuwahara Road Opens~

The urban renewal project on Gakuen Dori (eastbound) that connects Route 202 bypass to Kyushu University Ito Campus has been completed. The newly built road was extended by 480m from Kyushu University intersection towards Shima-Sakurai.

The old road was very narrow with only one sidewalk, but, with the new road, we are expecting to ensure safety for both pedestrians and bicyclers and at the same time the vitalize logistics and exchange.



Picture: the newly constructed road (toward Sakurai)

[Construction Summary]

- Location: Oaza Kuwahara, Nishi-ku, Fukuoka city
- Schedule: 2009~2013
- Construction: L = 480m
 W = 36m~27m
 (two lanes each way, four-lane)
- Contact: Fukuoka City Road & Wastewater Bureau
 Seibu Road Dept.
 092-733-5510

Itoshima City

~Small-scale hydroelectric power generation project at Shiraito-no-taki~
 'Shiraito-no-taki 1, 2, 3 Dream Project'

The 'Shiraito-no-taki 1, 2, 3, Dream Project' continues to run smoothly. This project is collaboration between Kyushu University (Shimatani Laboratory) and Itoshima municipality to harness the water of Kawatsuki River for hydroelectric power. It is designed as a symbol for renewable energy in the city with the intention of raising environmental awareness among the citizens of the community.

In this project, Step 1 is to learn about power generation systems by using the waterwheel at the falls of Shiraito-no-taki. Step 2 is to set a small-scale hydroelectric power generation device downstream of Shiraito-no-taki to generate electricity and sell the surplus power. Step 3 is to set a small-scale hydroelectric power generation device on Kawatsuki River in Itoshima municipal borough and use it to supply electricity to 35 households in the area. Currently we are at Step 2.



Picture: Shiraito-no-taki Fureai-no-sato



Picture: The power generation device set in Shiraito-no-taki Fureai-no-sato Cross-flow waterwheel + Adjustable three-phase synchronized power generator (left: 5kW) & Pelton wheel + Outer rotor power generator (right: 10kW)

[Shiraito-no-taki Small-scale Power Generation Specifications]

- Facility: Small-scale power generators 2
 (Maximum output 5kW + 10kW)
- Operation time/year: Approx. 6,500 hrs.
- Capacity/year: Approx. 97,500kWh
 (15kW x 6,500 hrs.)
- Utilization: Shiraito-no-taki Fureai-no-sato 50,000kWh
 Electric power sales 47,500kWh
- Durable period: Approx. 40 years

Information about enterprises and research institutions located in Kyushu University Academic City

This section provides information about enterprises and research institutions located in Kyushu University Academic City



Hydrogen Energy Test and Research Center (HyTReC)
New testing laboratory: Large-scale hydrogen vessel testing device (CRADLE)

The Hydrogen Energy Test and Research Center (HyTReC) has been utilizing the supplemental budget* from Ministry of Economy, Trade and Industry to build a new large-scale testing laboratory and we finally had a construction ceremony on April 22, 2014.

With the completion of the new laboratory, HyTReC has become the world's largest high-performance testing facility that can test large-scale hydrogen storage tanks for a hydrogen station in addition to testing small components used for vehicle fuel cells and other applications.

*Improvement project for a large-scale hydrogen vessel for hydrogen supply infrastructure for vehicle fuel cells.

Facility outline

Construction site

Itoshima Research Park (Tomi, Itoshima City) Approx. 8,300 m²

Facility

Total floor area 2,700 m²
 (Reinforced concrete: Ground 1, Basement 1) Pressure resistant

Equipment

Hydrogen gas and hydraulic pressure testing rooms to test pressure resistance
 (4 rooms for each)

Purpose

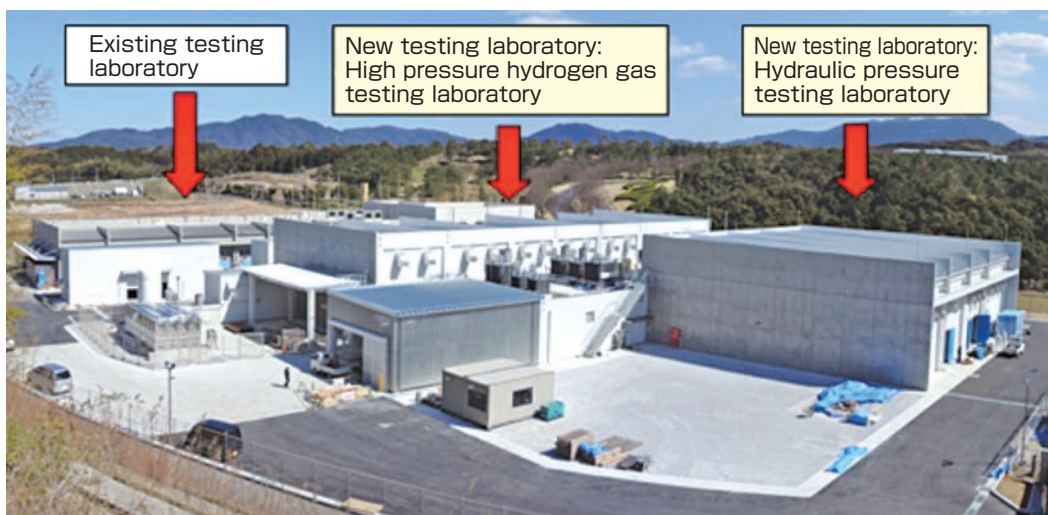
Durability and pressure testing for large-scale hydrogen storage tanks (dia. 80cm, length 6m)

Facility and equipment expenses

29,400,000,000yen (fully subsidized by the government)



Picture: High pressure hydrogen gas testing laboratory



【Vessel specification for evaluation target (Largest)】

Vessel capacity	Assumed vessel size	Design pressure	Max OT	Min OT
500 ℓ	φ800mm×6,000mm(L)	110MPa	+85℃	-40℃

【Each Testing Room Outline】 P = Pressure

Room name	Main specification	Test example
High pressure hydrogen gas test room (4)	Hydrogen Gas Pressure(Normal P): 110MPa Supply hydrogen gas flow volume: 2,000m ³ /hr Ambient TEMP control: -40℃~+85℃ Supply gas TEMP: (precooler): -40℃	Gas cycle test Gas permeability test Rapid filling test Airtight (gastight) test
Environmental pressure cycle test room (fluid-pressure) (1)	Maximum pressure: 140MPa Ambient TEMP control: -40℃~+85℃ Acceleration stress(TEMP Creep Test): 200MPa	Hydraulic cycle test High TEMP creep test
Standard temp. & pressure cycle test room (fluid-pressure) (1)	Maximum pressure: 140MPa	Hydraulic cycle test
Bursting test room (Hydraulic pressure) (1)	Maximum pressure: 380MPa	Pressure test Bursting test
Expansion test room (Hydraulic pressure) (1)	Maximum expansion volume: 2%	Volume expansion measurement

■ HyTReC centered cultivation and integration of hydrogen energy related industries.

- HyTReC opened on April, 2014 and has been conducting several tests such as valves and pipes used for fuel-cell-powered vehicles, and durability and performance testing of small-scale hydrogen storage tanks.
- While fuel-cell-powered vehicles is scheduled to be released in 2019, there were no facilities for testing the large-scale hydrogen storage tanks for the fueling stations that will be essential for the growth of this vehicle market. Therefore, enterprises were forced to test abroad.
- With the new testing laboratory, HyTReC has become the world's largest and best equipped facility for testing large-scale hydrogen storage tanks as well as for testing small-scale components used for fuel-cell powered vehicles as it has done to date.
- HyTReC will contribute to cultivation and integration of the hydrogen energy related industries in Fukuoka by being the support system for product development through conducting various testing and labor on the integrated promotion of the fuel-cell powered vehicles and hydrogen stations in Fukuoka.

Hydrogen Energy Test and Research Center (HyTReC)

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