

Introduction of Labs

3. High Temperature Sintering Laboratory

Main functions:

- (1) Calcining and sintering of electrode materials.
- (2) Synthesis of electro-spinning nano fibers and nano clothes.



4. Assembly Laboratory

Main functions:

- (1) Preparation of electrode slurry.
- (2) Slurry coating of electrodes.
- (3) Electrode pressing and slitting.
- (4) Assembly of coil cells.



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5. Battery Test Laboratory

Main functions:

- (1) Lithium ion battery testing at various C-rates.
- (2) Environmental test for lithium ion batteries (testing its performance at various temperatures and relative humidity).



6. Fuel Cell Test Laboratory

Main functions:

- (1) Performance evaluation for proton exchange membrane fuel cells (PEMFCs).
- (2) Performance evaluation for direct methanol fuel cells (DMFCs).



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7. Analytical Laboratory

Main functions:

Basic physical and chemical property measurements such as PSD, BET, ICP-OES, TGA, DSC, Uv-vis, for various kinds of battery materials.



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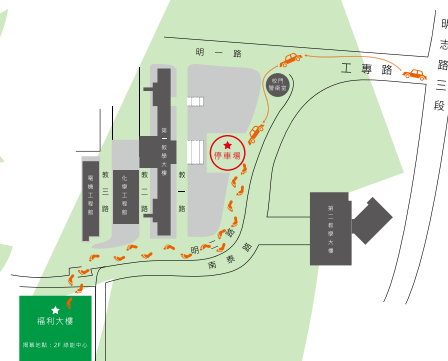
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Map:



Battery Research Center of Green Energy

Ming Chi University of Technology

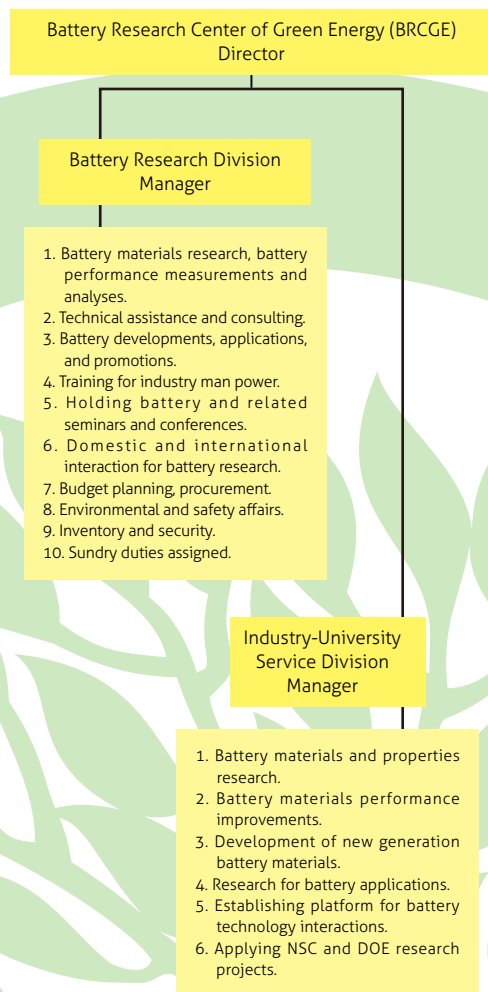
Introduction of Battery Research Center of Green Energy

Established on December 18, 2012, the Battery Research Center of Green Energy (BRCGE) at Ming Chi University of Technology (MCUT) is a unique organization that focuses on the research and development of future green energy technologies for industries. At the initial stage, the center has invested 2.7 millions US dollars in its 1300 square meters floor area for building remodeling and facility installation. The principal researchers consist of faculty members from the department of chemical engineering, department of materials science and engineering, and departments of electrical and mechanical engineering. BRCGE is a formal and class one organization at Ming Chi University of Technology. The organization consists of a director, two managers, an administrator, a technician, and a few postdoctoral research members. There are two divisions: Battery Research Division is responsible for planning and carrying out research projects; while Industry-University Service Division is responsible for operating and maintaining the center's facilities and helping the center's administration affairs.

Based on BRCGE's goals, the center is to provide consultation for industries and develop new technologies for industrial demands. The facilities at BRCGE are also planned to open for industrial users. By doing these, we hope to provide better service and have better connection with battery industries.



Organization and man power



Facilities and Instrumentation

In addition to a few administration rooms, BRCGE has seven research laboratories: there are two material synthesis labs, a high temperature sintering lab, a battery assembly lab, a materials analysis lab, and two battery testing labs.

Major facilities include electrode coater, glove box, pressure reactor, electro-spinning machine, element analyzer (EA), potentiostat, high temperature tube furnace, battery test station, microwave reactor, laser particle size analyzer, Uv-Vis spectrometer, high power charger-discharger, ICP-OES, starry ball miller, oven, PEMFC test station, DMFC test station, BET surface area analyzer, TGA, DSC, etc. BRCGE is loaded with these instruments for carrying out the research and development of advanced battery cathode materials such as lithium iron phosphates and lithium vanadium phosphates, anode materials such as graphite, graphene, buckypaper, and fuel cell key components such as proton exchange membrane and membrane electrode assemblies.



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1. Wet Process Laboratory

Main functions:

- (1) Analysis for the composition and structure of cathode materials (LFP, LVP, LFMP), anode materials (LTO, graphite), and composite polymer membrane separator (PE, PP).
- (2) Analysis for the composition and structure of fuel cell's electrodes and catalysts.



2. Dry Process Laboratory

Main functions:

- (1) Synthesis and preparation for lithium ion cathode materials (LFP, LVP, LEMP, LNM, LNCM), anode materials (LTO, graphite), and composite polymer materials (PE, PP).
- (2) Synthesis and preparation for fuel cell catalysts (Pt/C, PtRu/C) and components (CCMs, MEAs).

