



# Kyushu University

International Institute for Carbon-Neutral Energy  
Research (WPI-I2CNER), 744 Motoooka, Nishi-ku  
Fukuoka 819-0395, Japan

**Professor Bidyut Baran Saha**

*Phone & Fax: +81-(0)92-802-6722*

*E-mail: saha.baran.bidyut.213@m.kyushu-u.ac.jp*

January 12, 2020

## Thesis Certificate

Name of the Candidate: Berdenova Bakytur Amanbayevna

Metric No.: 6D060300 Mechanics

Institute: Al-Farabi Kazakh National University

Thesis Title: Adsorption Characterization of Composite Activated Carbons for Application in Adsorption Cooling Systems

It is certified that the work contained in the thesis entitled, “Adsorption Characterization of Composite Activated Carbons for Application in Adsorption Cooling Systems” submitted by Berdenova Bakytur Amanbayevna has been carried out under the supervision of Prof. Dr. Kaltayev Aidarkhan and myself and this work has not been submitted elsewhere for the degree.

The applicant studied the methods of analysis and post-processing of the experimental data to establish adsorption characteristics of the adsorbent material, proposes a mathematical model for simulation of the adsorption process. The title of the thesis is relevant. The candidate Ms. Berdenova, was interned in our institute I2CNER in summer 2017. During her stay she worked well and showed good progress. She conducted preliminary work at laboratory facilities for obtaining adsorption and thermal characteristics of the material. On the results of the research a scientific joint paper in peer-reviewed international journal was published.

I am aware of the content of the thesis and recommending PhD degree to the candidate.

Sincerely yours,

Bidyut Baran Saha, Ph.D.

Professor and Principal Investigator  
Thermal Science and Engineering Division  
International Institute for Carbon-Neutral Energy Research (WPI-I2CNER)  
Kyushu University  
E-mail: [saha.baran.bidyut.213@m.kyushu-u.ac.jp](mailto:saha.baran.bidyut.213@m.kyushu-u.ac.jp)

Professor, Mechanical Engineering Department, Kyushu University  
E-mail: [sahakyudai@gmail.com](mailto:sahakyudai@gmail.com)  
URL: <http://i2cner.kyushu-u.ac.jp/~saha/>