Kazakhstan State Program on Advanced Materials for Energy Storage

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Lithium-ion batteries leading the path as a power source and storage device for various applications from portable electronics and electric cars to large scale energy storage systems. This is due to their superior performance in terms of high energy density, stability, reliability, rapid operation and many other advantages compared with other types of batteries and energy storage means. However, emerging applications especially in consumer electronics and electric transport demand even better performance batteries, which can be made in a variety of shapes and sizes, conform with flexible and wearable applications, capable to work in extreme conditions, and all these combined with and exceptional high safety and lower cost.

These demands encouraged the development of a research program to address the above challenges for batteries for flexible applications, low temperature operations, thin film and microbatteries, and safe large scale energy storage from renewable sources. This Program considers not only technological developments but also training of researchers and involves a large number of students. The Program structure and progress will be discussed at the conference.

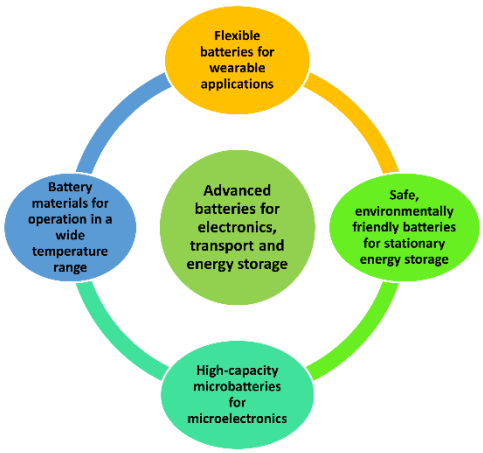

Figure 1.Research directions of Program

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Professor of School of Engineering and Digital Sciences of Nazarbayev University, Director of Center for Energy and Advanced Materials Science of National Laboratory Astana. Prof. Bakenov with his Group accomplished about 25 research and commercialization projects, including international and industrial projects; he published over 150 articles in peer-reviewed media, received 8 patents of Kazakhstan,USA and EU.

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