# Introduction of the Korea Nanotechnology Research Society and Recent Progress in Solid-State Nanopore

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The purpose of this talk is two-folds; one is the introduction of Korea Nanotechnology Research Society which was organized 15 years ago in Korea to support Nanotechnology Initiative program in Korea and another one is to introduce research activity of my group in solid state nanopore. Korea Nanotechnology Research Society organized Nano Korea exhibition and symposium which is held in every year. It also provides various programs to support Government in formulating research programs, educational programs, Korea nanotechnology Initiative agenda, Nanotechnology Road-map, to name a few. The details of these programs will be discussed.

The second part is about the research activities. The nanopore device using nanometer scale pore either inserted or formed in the membrane which provides the only passage of the matter from the cis- and trans-chambers has been widely utilized in detecting biomolecules in a single molecule basis, with an ultimate goal of sequencing DNA in a single molecule basis. While there has been much progress in application of solid state nanopore devices, there still remain many important limitations for the practical application of this technology in biomolecule sensing. Recently, we reported a new method of forming solid-state nanopore device which guarantees an extremely low noise (less than 10 pA) by fabricating device on pyrex substrate not on Si substrate. This device is also immune to optical pumping due to the large band gap of dielectric substrate. Therefore, concomitant measurement of electrical and optical sensing is now become possible. The impact of using low noise device in enhancing the signal-to-noise level will be demonstrated by few examples.

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