

The Benjamin Lee Lectureship

Jung Hoon Han

Benjamin Lee (1935-1977, Lee Whiso in Korean, 李輝昭 in Chinese characters) was a theoretical physicist of Korean origin, who contributed massively to the gauge theory of particle physics in the late 60s and the 70s. During the period shortly after the end of Korean War he left the country to go to the United States as a young college student in pursuit of his academic dream and, as befitting a person of great destiny, quickly rose through the academic ladders to the position of importance and respect in the theoretical particle physics community. He was the head of the theoretical physics department at Fermi lab when a tragic car accident took his life at the early age of 42. He was on his way to the Aspen summer workshop. The influence he exerted on the younger generation of particle physicists is summed up in the Nobel lecture delivered by David Politzer in 2004, who said “I think it worth noting that I, personally, know of no one who claimed to understand the details of ‘t Hooft’s paper. Rather we all learned it from Ben Lee..”.

The other sorry aspect of his premature passing is the conspiracy-theory that sometimes shrouds the accident. It is neither appropriate for me nor relevant to discuss the veracity of the story here. What is important is the fact that most Koreans outside of physics (and even those within physics) know of Ben Lee not as the great physicist that he was, but as an unlucky hero who unsuccessfully and tragically attempted to help a secret



nuclear bomb project in South Korea. It makes for a fine, romantic novel (which indeed came out some years ago), but at the same time, in my view, it did a lot to divert the attention from all the contributions Lee made in physics. We were aware of no memorial prizes and of no lectureship held in his honor and on a regular basis in Korea.

In a welcome turn of events, the APCTP, under the leadership of professor Peter Fulde, has taken the initiative to rectify the situation and has created a lectureship bearing his name. The aim of the Benjamin Lee Lectureship is to invite a prominent theoretical physicist for an extended period to visit the APCTP headquarters in Pohang where he or she will deliver a set of lectures. Its first recipient was professor Naoto Nagaosa of The University of Tokyo, who came in March this year to deliver a series of brilliant lectures under the heading “Gauge Fields in Condensed Matter”.

Naoto Nagaosa has been a professor at the department of applied physics since the early 90s. He contributed extensively on theories of high-T_c cuprates, low-dimensional systems, manganites, and several others. Beginning around the new millennium, he has been actively pioneering the path of Berry phase ideas in condensed matter systems. These Berry phase effects arise from subtle band structures in conductors or insulators. To the laymen, it is about exploiting the imaginary part of the wave functions and their physical implications.

What has been remarkable is that such a simple idea can reveal profound aspects of a wide class of condensed matter phenomena broadly known as topological and non-topological charge and spin Hall effects. His collaboration with professor Tokura's group over the past two decades has produced some of the most exciting theory-experiment collaboration papers in condensed matter physics on fields as diverse as manganites,

Jung Hoon Han is a theoretical condensed matter physicist at Sungkyunkwan University in Suwon, Korea. After his Ph.D. in 1997 under professor David Thouless, he was one of the early post-doc members of the fledging APCTP. Finishing his second post-doctoral work with professor Dung-Hai Lee, he joined the physics faculty of Konkuk University in 2001 and Sungkyunkwan University in 2003. He has been working on theories of magnetism, multiferroics, Bose-Einstein condensates, and recently has taken an interest in Rashba phenomena in magnetic and non-magnetic surfaces. He is currently serving as the condensed matter program coordinator of the APCTP.