**Recent Trend of Plasma Science and Technology**

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In the last several decades, we have observed that plasma science has become a basic fundamental science associated with nano, bio, environment, space, and energy technologies whose examples are found near us in energy harvesting, display, microelectronics, and even food and agriculture (under the name of ‘plasma farming’). In this presentation, recent R&D trends on plasma science and technology in a few important areas are discussed: nuclear fusion for future energy, space application for human space frontier, and plasma farming. Human-engineered nuclear fusion utilizing deuterium and tritium has already been demonstrated on a small scale. The challenges facing the fusion community are to find ways to scale up the fusion process to commercial proportions, in an efficient, economical, and environmentally benign way. A major demonstration of fusion’s potential will soon be demonstrated as an international joint project in ITER that is under construction now in Cadarache, France. In Korea, a superconducting tokamak KSTAR is in operation to elucidate many critical plasma physics and technological issues. University plasma fusion research centers are also playing a crucial role in fusion plasma physics and engineering, together with the KSTAR and the ITER teams. Here, we discuss physics challenges for realizing fusion energy. Our history obviously presents many examples that introduction of new transportation technologies accelerated civilization (horse to train to airplane etc). Plasma science and technology will be in the center for further revolutionizing human civilization for space frontier by providing plasma-based space transportation. Space exploration is particularly important for Korea due to the geopolitical situation sandwiched between neighboring big political powers. In the last decade, Korean activities have enabled research and development of plasma engines for small and medium sized satellites and space-crafts that have been operating in three different satellites in orbit. Also, smaller scale plasma engine science will be described in the presentation. As a part of the ‘Plasma Farming’, a comprehensive application of the plasma to the entire agricultural stages from farm to table, the application of atmospheric pressure plasma (APP) on the food industry looks promising. The APP can bring highly ensured safety and extended shelf-life, which would ultimately provide a comprehensive solution to challenges in the food industry. In parallel, the atmospheric pressure plasmas used for these purposes are rich of physics, for instance plasma bullet dynamics and electric wind. In this presentation, example-based discussions will be made particularly for the food safety, the food processing, and the novel smart plasma packaging.