

TINT Initiative on Fusion Energy Program in Thailand: Current Status and Outlook

Fusion Reactions can release a huge amount of energy per reaction and still be clean with no greenhouse gases emission. An alternative energy source of CO₂-free and at gigawatt scale production such as fusion energy is on sought to strengthen the electricity stability of our country. Thailand Institute of Nuclear Technology (TINT) has initiated a newly established department on Plasma and Nuclear Fusion under Center of Excellence in Advanced Engineering and Nuclear Technology (CAEN-Tech) as a platform to link TINT and other nineteen Thai academic and research institutes (CPaF) together. The long term roadmap was laid down with three key areas identified. The first area is on major infrastructures such as the first tokamak with important components; toroidal and poloidal magnets, vacuum chamber etc. and their supporting sub-systems. The tokamak is due to commission at the beginning of 2022. The second major area is on tokamak-related research and development such plasma heating, plasma diagnostics, high-field magnets, high-speed data acquisition for plasma control, advanced materials, and also prediction of plasma behavior under various tokamak operating conditions. The R&D is also foreseen to facilitate from day-to-day applications to potential national programs, e.g., advanced accelerator technology and space exploration. The third major area is on human resource development programs. One activity is organizing ASEAN School for Plasma and Nuclear Fusion (ASPNF). The first school started in 2015 and runs annually since then. It accepts participants from Thailand and ASEAN countries. Lecturers in the school have been kindly supported by CEA, NIFS, ASIPP and IAEA. This contribution will summarize ongoing activities and also present an outlook of the project.

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