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# Interatomic potential development for H permeation in critical components

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A broader range of materials that are relevant in fusion power generation is studied. Each fusion-relevant material, whether in plants or operators, requires an extensive study of hydrogen permeation due to either safety or efficiency, which is critical to the success of DEMO plants. Here we propose a 5-year coordinated research project in which many different materials ranging from plasma-facing components to concrete shielding to human tissues are reviewed from the perspective of urgent needs and readiness for molecular dynamics simulation. Critical systems for which no (accurate) potential models are identified in the first two years, and interatomic potentials for large-scale molecular dynamics in these material systems are developed in the subsequent years.

**Primary authors:** Prof. LEE, Byeongchan (Kyung Hee University); Prof. ODA, Takuji (Seoul National University); Prof. KANG, Keonwook (Yonsei Univesity); Prof. KIM, Duho (Kyung Hee University)

**Presenter:** Prof. LEE, Byeongchan (Kyung Hee University)

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