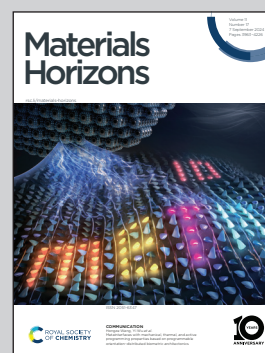


Showcasing research from the Professorship of Renewable Energy Carriers at ETH Zurich, led by Prof. Aldo Steinfeld

Thermochemical production of ammonia *via* a two-step metal nitride cycle – materials screening and the strontium-based system

A promising pathway for the synthesis of green ammonia is investigated. It consists of a 2-step nitridation-hydrogenation cycle involving metal nitrides. Compared to the conventional Haber-Bosch synthesis, the proposed thermochemical cycle can be performed at moderate pressures and without added catalysts, and can be driven by concentrated solar energy as the source of high-temperature process heat. The feasibility of potential mono-metallic nitrides is evaluated by applying a combined theoretical and experimental screening methodology, which is highlighted for the Sr-based cycle.

As featured in:



See Aldo Steinfeld *et al.*,
Mater. Horiz., 2024, 11, 4054.