

## Strategy for developing efficient Pd-based light absorption materials for solar to steam application

Oleksii Omelianovych, 트란끼시, 이수민, 윤일선, 최호석<sup>†</sup>  
충남대학교  
(hchoi@cnu.ac.kr<sup>†</sup>)

This study provides important insights on optimization of metal-based materials for solar driven steam generation. For this purpose, we synthesize two different Pd-based light absorbing materials. Pd nanoparticles are synthesized through dry plasma reduction (DPR) and thermal decomposition. Optimization strategy lays in detailed comparison of structural, morphological and optical properties of the obtained materials. We discover that morphological properties of metal nanoparticles make huge impact on its optical properties and therefore its solar steam generation efficiency. The contrast between synthesized materials is provided through comparison of SEM, TEM, XPS and XRD data. Optical and steam generation properties are described in terms of UV-vis spectroscopy and steam generation measurements, respectively. Furthermore, in order to confirm the relevance of our data, we conduct FDTD simulation, which shows that our experimental results are in a good agreement with simulation.