



Showcasing research from Professor Soejima's laboratory,  
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Photocatalytic hydrogen peroxide production with an external  
quantum yield of almost 500%

From the perspective of energy and environmental issues, the development of green methods for  $\text{H}_2\text{O}_2$  production is demanded. Among the candidates, photocatalytic  $\text{H}_2\text{O}_2$  production using robust inorganic materials has recently attracted much interest. However, the external quantum yield ( $\phi_{\text{ex}}$ ) of  $\text{H}_2\text{O}_2$  production by inorganic photocatalysts remains below 20% in most studies. Here we demonstrate that a nanohybrid photocatalyst consisting of antimony-doped  $\text{SnO}_2$  and  $\text{ZnO}$  can produce  $\text{H}_2\text{O}_2$  with a  $\phi_{\text{ex}}$  of ~500% from  $\text{O}_2$ -saturated ethanol aqueous solution under UV-light irradiation. The innovative results of this study pave the way for practical photocatalytic  $\text{H}_2\text{O}_2$  production.

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See Shin-ichi Naya, Hiroaki Tada,  
Tetsuro Soejima *et al.*,  
*Chem. Sci.*, 2025, **16**, 9125.