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Supporting Information

Decomposition of an aqueous ammonia solution as a photon energy conversion using a Ru-loaded ZnS photocatalyst

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Figure S1 XPS spectra of non-loaded ZnS (black) and Ru-loaded ZnS before (red) and after (blue) the photocatalytic decomposition of an aqueous ammonia solution. The binding energy was corrected by the $Zn2p_{3/2}$ (1022 eV) in ZnS^1 .

1. S. W. Gaarenstroom and N. Winograd, J. Chem. Phys., 1977, 67, 3500.



Figure S2 Diffuse reflectance spectra of non-loaded ZnS (black) and Ru-loaded ZnS before (red) and after (blue) the photocatalytic decomposition of an aqueous ammonia solution.



Figure S3 Sacrificial H₂ evolution over non- and Ru(1 wt%)-loaded ZnS photocatalysts under photoirradiation.

Photocatalyst: 0.3 g; solution: 150 mL of an aqueous solution containing 0.1 mol L^{-1} Na₂S + 0.5 mol L^{-1} K₂SO₃; light source: 300 W Xe lamp; cell: top-irradiation cell with a Pyrex window.