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CODEN JREAE 6

Journal of **Rare Earths**

Ce-MOF

260°C

$\text{CeO}_2(400)$

Mechanism of CeO_2 Synthesized by Thermal
Decomposition of Ce-MOF and Its Performance
of Benzene Catalytic Combustion

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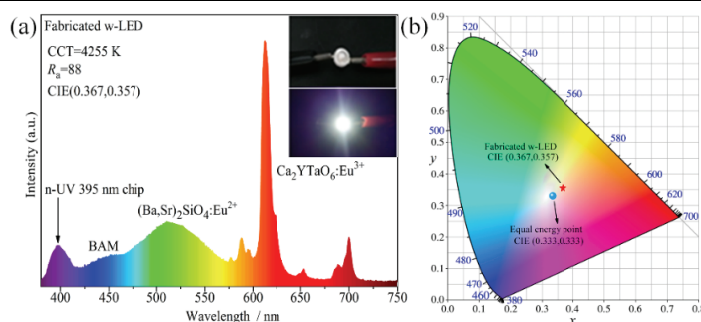
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Zhongtao Jiang^{*}, Xiang Meng, Bin Jiang^{**}, Shan Jiang, Jiahong Dai, Jingren Dong, Yongfeng Ding 881

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SPECTROSCOPY, LUMINESCENCE AND PHOSPHORS

- 749 A potential red-emitting phosphor
 $\text{Ca}_2\text{YTaO}_6:\text{Eu}^{3+}$: Luminescence properties,
 thermal stability and applications for white
 LEDs

Ka Ding, Siru A, Shuo Pang, Leyan Shan,
 Yaqi Zhang, Pengfei Sun, Bin Deng**,
 Ruijin Yu*

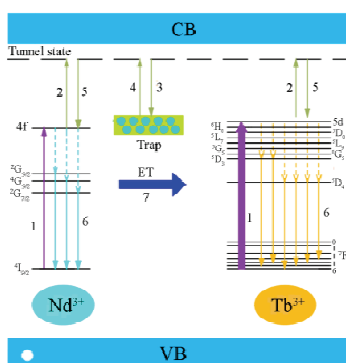


The white LED was fabricated by the combination of $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$ (BAM, blue), $(\text{Ba,Sr})_2\text{SiO}_4:\text{Eu}^{2+}$ (green), and $\text{Ca}_2\text{YTaO}_6:0.04\text{Eu}^{3+}$ with a 395 nm chip. The w-LED glows with bright white light. The CIE coordinates of the w-LED are close to the equal energy point (0.333, 0.333)

J. Rare Earths, (39) 2021: 749-756

- 757 Sensitizing effect of Nd^{3+} on Tb^{3+} activated
 ZrP_2O_7 long persistent phosphor materials

Meihua Wu, Wen Chen, Siyuan Liu,
 Yichao Sun, Lingfeng Huang, Guoliang Chen,
 Zishan Zheng*

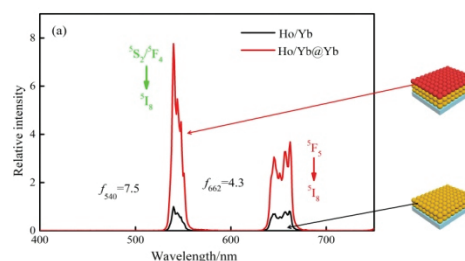


The energy transfer from the sensitizers Nd^{3+} to the luminescence centers Tb^{3+} played an important role in enhancing the luminescence properties of $\text{ZrP}_2\text{O}_7:\text{Tb}^{3+},\text{Nd}^{3+}$

J. Rare Earths, (39) 2021: 757-764

- 765 Emission enhancement and color modulation
 of $\text{Tm}(\text{Ho})/\text{Yb}$ codoped $\text{Gd}_2(\text{MoO}_4)_3$ thin
 films via the use of multilayered structure

Liang Li, Fei Xing, Xueru Zhang,
 Haoyue Hao*, Yuxiao Wang**



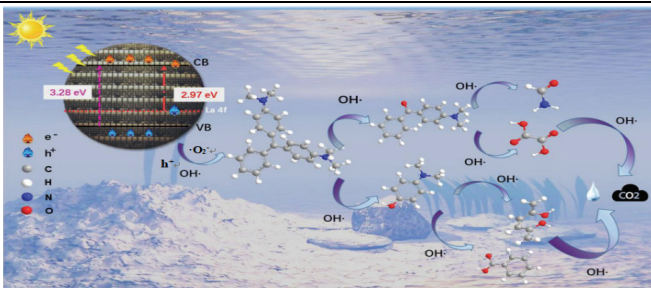
A series of multilayered structured thin films were prepared through sol-gel and spin-coating method. The enhancement factors of the emissions ($\text{Ho}/\text{Yb}@\text{Yb}$ thin films) located at 540 and 662 nm reach 7.5 and 4.3, respectively. The considerable enhancement is due to the suppression of surface quenching and energy harvesting via the Yb ions in the outer shell

J. Rare Earths, (39) 2021: 765-771

RARE EARTH CATALYSIS

- 772 High photocatalytic activity over starfish-like
 La -doped ZnO/SiO_2 photocatalyst for
 malachite green degradation under visible
 light

Shuo Wang*, Zhenke Chen, Ying Zhao,
 Chenlu Sun, Jianye Li

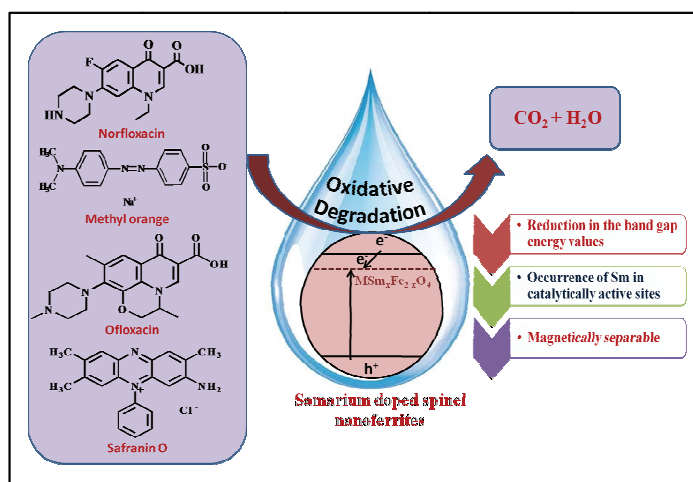


This work reports a unique starfish-like $\text{La-ZnO}/\text{SiO}_2$ photocatalyst, which shows obviously excellent photocatalytic activity and stability for MG degradation. This work highlights using lanthanum as a promising dopant to design efficient photocatalyst with collaborative optimizing light utilization and charge separation

J. Rare Earths, (39) 2021: 772-780

- 781 Traversing the advantageous role of samarium doped spinel nanoferrites for photocatalytic removal of organic pollutants

Sneha Singh, Paramdeep Kaur, Vinod Kumar, K.B. Tikoo, Sonal Singhal*

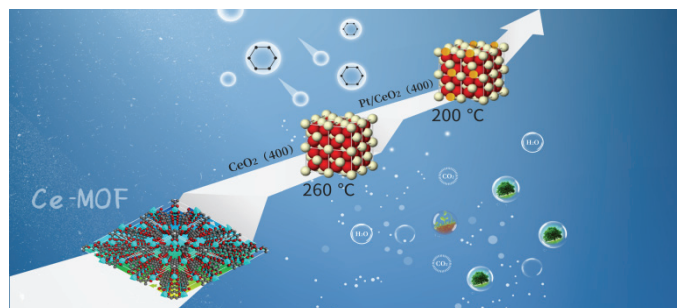


Sm doped spinel nanoferrites, $\text{MSm}_x\text{Fe}_{2-x}\text{O}_4$ ($\text{M}=\text{Ni}, \text{Co}; x=0, 0.02, 0.06, 0.1$) were established as highly efficient and versatile photocatalyst for the removal of organic pollutants

J. Rare Earths, (39) 2021: 781-789

- 790 Mechanism of CeO_2 synthesized by thermal decomposition of Ce-MOF and its performance of benzene catalytic combustion

Jie Zheng, Zhuo Wang, Zhu Chen, Shufeng Zuo*

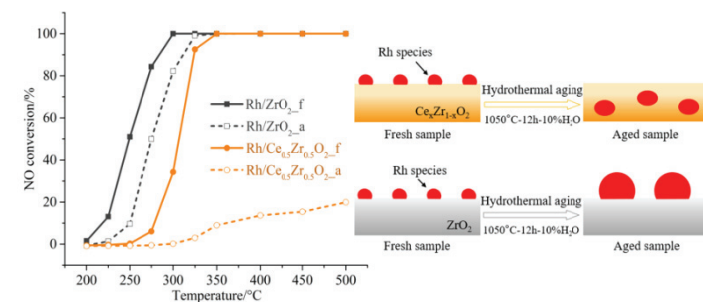


A series of mesoporous CeO_2 was synthesized by thermal decomposition of Ce-MOF at different temperatures. Both CeO_2 (400) and its supported 0.2% Pt nanocrystalline catalyst exhibit very high catalytic activity for benzene combustion, which can completely catalyze the degradation of low concentration of benzene at 260 and 200 °C, respectively

J. Rare Earths, (39) 2021: 790-796

- 797 Possible negative influences of increasing content of cerium on activity and hydrothermal stability of Rh/ceria-zirconia three-way catalysts

Tianming Huang, Meiqing Shen, Guanghao Cheng, Yunhao Wang, Jianqiang Wang, Wei Li, Se H. Oh, Gongshin Qi, Ming Yang*, Jun Wang**

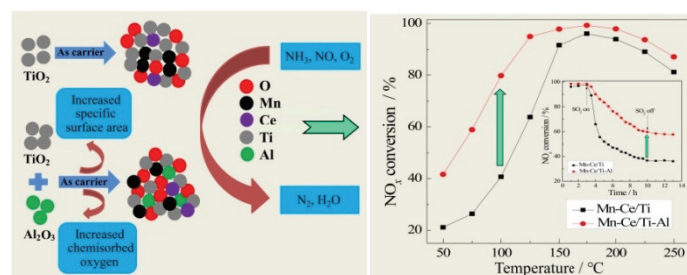


While weak interactions between Rh and ZrO_2 result in the sintering of Rh particles during catalyst aging, the $\text{Rh/Ce}_x\text{Zr}_{1-x}\text{O}_2$ ($x \neq 0$) catalysts deactivate differently owing to the overly strong Rh-O-Ce interactions. Both scenarios should be mitigated when developing active and stable rhodium catalysts for high-temperature operations

J. Rare Earths, (39) 2021: 797-804

- 805 Low-temperature NH_3 -SCR of NO_x over $\text{MnCeO}_x/\text{TiO}_2$ catalyst: Enhanced activity and SO_2 tolerance by modifying TiO_2 with Al_2O_3

Gang Li, Dongsan Mao*, Mengxi Chao, Gehua Li, Jun Yu**, Xiaoming Guo

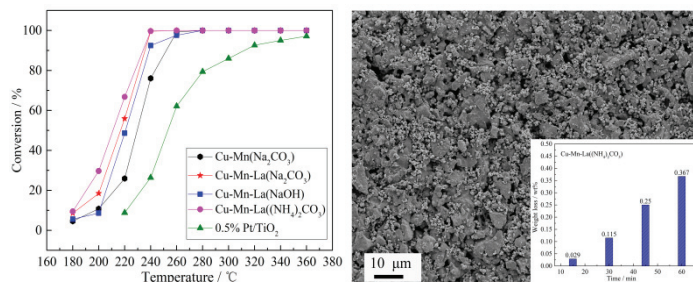


The activity of Mn-Ce/Ti-Al catalyst is closely related to the physicochemical property of $\text{TiO}_2\text{-Al}_2\text{O}_3$ composite supports. When the active component of Mn and Ce species is highly dispersed on the surface, the catalytic activity and resistance to SO_2 are increased

J. Rare Earths, (39) 2021: 805-816

- 817 Catalytic decomposition of ethyl acetate over La-modified Cu-Mn oxide supported on honeycomb ceramic

Rui Xiao, Ruixiang Qin^{**}, Chunxue Zhang, Shan Chen, Jinbo Wang^{*}

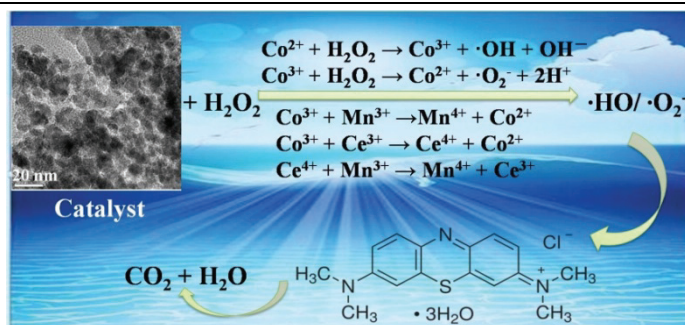


La doping modification improves the low-temperature performance of the catalyst, and the honeycomb ceramic monolithic catalyst has strong adhesion and low shedding rate

J. Rare Earths, (39) 2021: 817-825

- 826 Solid-state preparation of mesoporous Ce-Mn-Co ternary mixed oxide nanoparticles for catalytic degradation of methylene blue

Qingwen Wang, Wenyong Deng, Xinchen Lin, Xigen Huang, Ling Wei, Lei Gong, Changxiang Liu^{*}, Guangbin Liu, Qian Liu^{**}



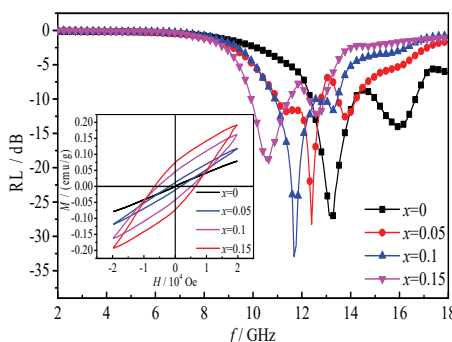
The synergistic effect of Ce, Mn and Co can promote the formation of more lattice defects, higher specific surface area and smaller particle size, which enhance the catalytic activity for the degradation of methylene blue

J. Rare Earths, (39) 2021: 826-834

MAGNETISM AND MAGNETIC MATERIALS

- 835 Effects of Sm-doping on microstructure, magnetic and microwave absorption properties of BiFeO₃

Chuang Tian, Qingrong Yao^{*}, Zhaoferi Tong, Huaiying Zhou, Guanghui Rao^{**}, Jianqiu Deng, Zhongmin Wang, Jiang Wang



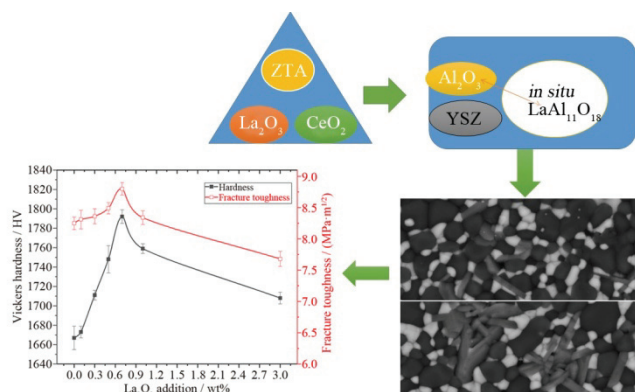
The substitution of rare earth Sm element for Bi element can effectively improve the magnetic properties and microwave absorption performance of BiFeO₃. The microwave absorption mechanism of the Bi_{1-x}Sm_xFeO₃ (x=0, 0.05, 0.1, 0.15) samples includes interface polarization, dipole polarization, eddy current loss and natural magnetic resonance

J. Rare Earths, (39) 2021: 835-843

ADVANCED RARE EARTH MATERIALS

- 844 Effects of La₂O₃ addition on microstructure development and physical properties of harder ZTA-CeO₂ composites with sustainable high fracture toughness

Zhwan Dilshad Ibrahim Sktani^{*}, Nik Akmar Rejab, Abdul Fatah Zulkarnain Rosli, Ali Arab^{**}, Zainal Arifin Ahmad^{***}

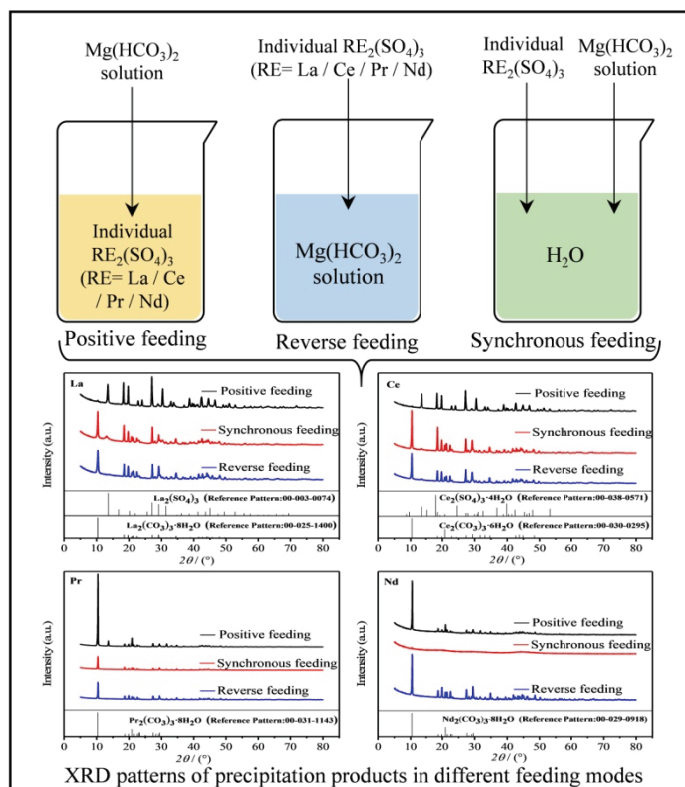


Agglomeration of LaAl₁₁O₁₈ grains for more than the optimum amount of 0.7 wt% La₂O₃ addition leads to increase of porosity and reduction in density which reflects in deterioration in mechanical properties

J. Rare Earths, (39) 2021: 844-849

- 850 Behavior of sulfate in preparation of single light rare earth carbonate by $\text{Mg}(\text{HCO}_3)_2$ precipitation method

Meng Wang, Xiaowei Huang*, Zongyu Feng,
Chao Xia, Deliang Meng, Zonghe Yu

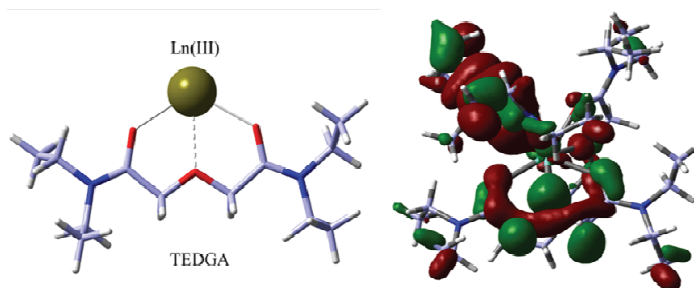


In the preparation of RE carbonates by precipitation with $\text{Mg}(\text{HCO}_3)_2$, the feeding modes have a great influence on the content of SO_4^{2-} in the precipitation because of the different forms of RE carbonates

J. Rare Earths, (39) 2021: 850-857

- 858 Theoretical elucidation of rare earth extraction and separation by diglycolamides from crystal structures and DFT simulations

Xiujing Peng, Jianhui Su, Hao Li, Yu Cui,
Jin Yong Lee**, Guoxin Sun*

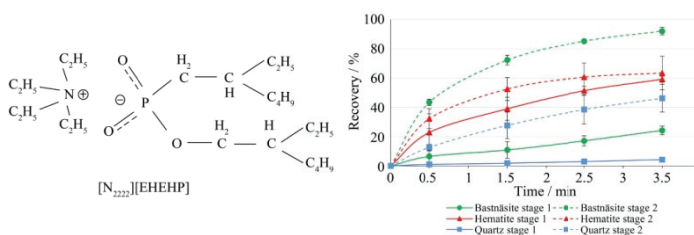


The rare earth ions with large atomic numbers tend to form planar structures with large dihedral angles with DGA ligands

J. Rare Earths, (39) 2021: 858-865

- 866 Investigating the use of an ionic liquid for rare earth mineral flotation

R. Li, C. Marion, E.R.L. Espiritu, R. Multani,
Xiaoqi Sun, K.E. Waters*

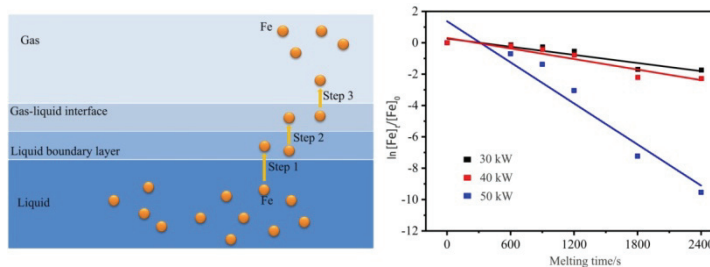


Ionic liquid used as a collector to float bastnaesite

J. Rare Earths, (39) 2021: 866-874

- 875 Mechanism of removing ferrum impurity in lanthanum refined by electron beam melting

Siming Pang*, Wenli Lu, Zhenfei Yang,
Xiaowei Zhang, Dehong Chen, Daogao Wu,
Lin Zhou, Ruiying Miao

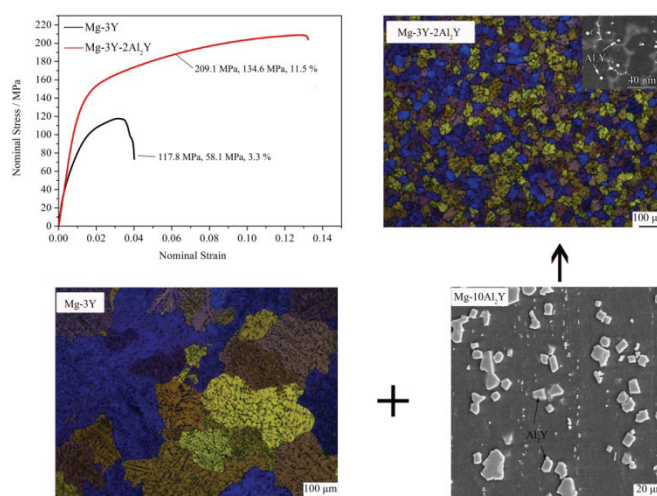


Electron beam melting (EBM), with the advantage of high temperature and high vacuum degree, can be demonstrated as an effective method to purify La in this study. Thereinto, the Fe concentration is significantly decreased from 1482 to 0.1 $\mu\text{g/g}$ under 50 kW and 2400 s. The reaction of Fe removal by EBM follows the first-order rate law, and Fe impurity is removed by evaporation as a single atom

J. Rare Earths, (39) 2021: 875-880

- 881 Grain refinement of Mg-3Y alloy using Mg-10Al₂Y master alloy

Zhongtao Jiang*, Xiang Meng, Bin Jiang**,
Shan Jiang, Jiahong Dai, Jingren Dong,
Yongfeng Ding



The grain size of as-cast Mg-3Y alloy can be dramatically refined through adding of the novel Mg-10Al₂Y grain refiner, and the tensile properties of Al₂Y refined alloy are improved significantly

J. Rare Earths, (39) 2021: 881-888