Iridium complexes for perovskite batteries

Are iridium double perovskites oxygen-evolving catalysts?
Here we report on a class of oxygen-evolving catalystsbased on iridium double perovskites which contain 32 wt% less iridium than IrO 2 and yet exhibit a more than threefold higher activity in acid media.

Are perovskites a good material for batteries?
Moreover,perovskites can be a potential material for the electrolytes to improve the stability of batteries. Additionally,with an aim towards a sustainable future,lead-free perovskites have also emerged as an important material for battery applications as seen above.

Can perovskite materials be used in solar-rechargeable batteries?
Moreover,perovskite materials have shown potential for solar-active electrode applications for integrating solar cells and batteries into a single device. However,there are significant challengesin applying perovskites in LIBs and solar-rechargeable batteries.

Can perovskites be integrated into Li-ion batteries?
Precisely, we focus on Li-ion batteries (LIBs), and their mechanism is explained in detail. Subsequently, we explore the integration of perovskites into LIBs. To date, among all types of rechargeable batteries, LIBs have emerged as the most efficient energy storage solution .

Are IR-based perovskites a catalyst for OER 12 13 14 15?
Recently,several Ir-based perovskites were reported as highly active catalystsfor OER 12,13,14,15. The perovskite is a type of oxide with a general formula of ABO 3,where A represents alkaline-earth-metal or lanthanide and B represents active transition metals.

Are iodide- and bromide-based perovskites active materials for Li-ion batteries?
In an initial investigation ,iodide- and bromide-based perovskites (CH 3 NH 3 PbI 3 and CH 3 NH 3 PbBr 3) were reported as active materialsfor Li-ion batteries with reversible charge-discharge capacities.

These results highlight the potential of this perovskite anode material for use in Zn 2+ batteries. Moreover, perovskites can be a potential material for the electrolytes to ...

The photophysical properties of the [3+2+1] iridium (III) complex were investigated. As shown in Figures 2A,B, the absorption and phosphorescent emission (PL) for the Ir-dfpMepy-CN were recorded in degassed CH 2 Cl 2 (DCM) solution at a concentration of 2 × 10 -5 M. The strong absorption at 250-280 nm in the ultraviolet region (? > 2.5 × 104 M -1 cm ...

Yang, L. et al. Enhanced iridium mass activity of 6H-phase, Ir-based perovskite with nonprecious

incorporation for acidic oxygen evolution electrocatalysis. ACS Appl. Mater. Interfaces 11, 42006 ...

Here we present a combination of X-ray and electron scattering data that reveals direct evidence for three paracrystalline structural motifs at the restructured surfaces of highly active catalysts...

Here we report on a class of oxygen-evolving catalysts based on iridium double perovskites which contain 32 wt% less iridium than IrO 2 and yet exhibit a more than threefold higher activity...

Herein we will discuss findings of recently published articles regarding photocatalytic PHE systems mainly based on Ir(III), and classified into four categories based on their structures: (i) cationic Ir(III) complexes with general fomula [Ir(C^N) 2 N^N] +; (ii) neutral Ir(III) complexes with general formula [Ir(C^N) 3]; (iii) Ir(III ...

Here, a pseudo-cubic SrCo 0.9 Ir 0.1 O 3-? perovskite, containing corner-shared IrO6 octahedrons, is designed. The Ir in the SrCo 0.9 Ir 0.1 O 3-? catalyst shows an extremely ...

Here we report on a class of oxygen-evolving catalysts based on iridium double perovskites which contain 32 wt% less iridium than IrO 2 and yet exhibit a more than threefold ...

Here, we synthesized 5% Iridium (Ir)-doped hexagonal phase perovskite BaCo 0.8 Fe 0.15 Ir 0.05 O 3-? (BCFI). Using the Rietveld method to refine the structure, combining ...

From a series of characterization techniques, including X-ray absorption spectroscopy, atomic resolution electron microscopy, X-ray photoelectron spectroscopy, and X-ray diffraction, we prove the successful incorporation of Ir into a strontium tungsten oxynitride perovskite structure and discover the formation of a unique Ir-N/O ...

Ionic iridium(III) complexes are emerging with great promise for organic electronic devices, owing to their unique features such as ease of molecular design and synthesis, excellent photophysical properties, superior redox stability, and highly efficient emissions of virtually all colors. Here, recent progress on new material design, regarding photo- and ...

Here we present a combination of X-ray and electron scattering data that reveals direct evidence for three paracrystalline structural motifs at the restructured surfaces of ...

A new iridium complex, IrCp*Cl (PyPyz) [TFSI], has been synthesized and used as additive for the hole transporter material, spiro-OMeTAD, in perovskite solar cells. The cells prepared with this...

The occurrence of diseases is usually accompanied by changes in protein levels and types. These differentially expressed proteins can be used as biomarkers for the diagnosis and treatment of diseases. In recent years,

luminescent iridium(III) complexes have attracted much attention in the field of protein-based disease diagnosis due to their excellent ...

Herein we will discuss findings of recently published articles regarding photocatalytic PHE systems mainly based on Ir(III), and classified into four categories based ...

A new iridium complex, IrCp*Cl(PyPyz)[TFSI], has been synthesized and used as additive for the hole transporter material, spiro-OMeTAD, in perovskite solar cells. The cells prepared with this Ir additive present higher efficiency than reference cells, and similar to cells prepared with Co additive. We have determined that the ...

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