Investigating Catalyst-Support Interactions To Improve the Hydrogen Evolution Reaction Activity of Thiomolybdate [Mo3S13](2-) Nanoclusters - DTU Orbit (08/12/2018)

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Molybdenum sulfides been identified as promising materials for catalyzing the hydrogen evolution reaction (HER) in acid, with active edge sites that exhibit some of the highest turnover frequencies among nonpreciousmetal catalysts. The thiomolybdate [Mo3S13](2-) nanocluster catalyst contains a structural motif that resembles the active site of MoS2 and has been reported to be among the most active forms of molybdenum sulfide. Herein, we improve the activity of the [Mo3S13](2-) catalysts through catalyst support interactions. We synthesize [Mo3S13](2-) on gold, silver, glassy carbon, and copper supports to demonstrate the ability to tune the hydrogen binding energy of [Mo3S13](2-) using catalyst support electronic interactions and optimize HER activity.

**General information**

State: Published
Organisations: Department of Physics, Experimental Surface and Nanomaterials Physics, SLAC National Accelerator Laboratory, Stanford University
Pages: 7126-7130
Publication date: 2017
Peer-reviewed: Yes

**Publication information**

Journal: A C S Catalysis
Volume: 7
Issue number: 10
ISSN (Print): 2155-5435
Ratings:
- BFI (2018): BFI-level 1
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 1
- Scopus rating (2017): CiteScore 11.49 SJR 4.921 SNIP 2.113
- Web of Science (2017): Impact factor 11.384
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 1
- Scopus rating (2016): CiteScore 10.3 SJR 4.367 SNIP 2.081
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 1
- Scopus rating (2015): CiteScore 9.88 SJR 3.973 SNIP 2.119
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 1
- Scopus rating (2014): CiteScore 8.74 SJR 3.67 SNIP 2.02
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 1
- Scopus rating (2013): CiteScore 7.41 SJR 3.301 SNIP 1.848
- Web of Science (2013): Impact factor 7.572
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- Scopus rating (2012): CiteScore 5.19 SJR 2.729 SNIP 1.619
- Web of Science (2012): Impact factor 5.265
- ISI indexed (2012): ISI indexed no
- Web of Science (2012): Indexed yes
- Web of Science (2011): Impact factor
- ISI indexed (2011): ISI indexed no

**Original language**: English

**Keywords**: Hydrogen evolution reaction, Molybdenum sulfide, Electrochemistry, Renewable energy, Catalyst-support interactions
DOI:
10.1021/acscatal.7b02133
Source: FindIt
Source-ID: 2390406800
Research output: Research - peer-review; Journal article – Annual report year: 2017