Electrochemical and cycling performance of neodymium (Nd3+) doped LiNiPO4 cathode materials for high voltage lithium-ion batteries - DTU Orbit (15/03/2019)

Electrochemical and cycling performance of neodymium (Nd3+) doped LiNiPO4 cathode materials for high voltage lithium-ion batteries

Olivine-type LiNiPO4 and their corresponding Nd3+ doped LiNiPO4 cathode materials were synthesized through polyol process with 1, 2 propane-diol as the medium. The inclusion of Nd3+ to LiNiPO4 significantly enhanced the electronic conductivity by two orders as compared to bare LiNiPO4. The cyclic voltammograms revealed that the rare earth doped LiNiPO4 electrode improved the electrochemical properties. The single cell consisting of 0.07 mol% Nd3+ doped samples showed the highest specific capacity of 95.2 mAh g−1 at low current rate, which makes Nd3+ doped LiNiPO4 a prime candidate for high potential lithium-ion batteries (LIBs).

General information
State: Published
Organisations: Imaging and Structural Analysis, Department of Energy Conversion and Storage, K. Ramakrishnan College of Technology, Dongguk University
Contributors: Karthickprabhu, S., Vikraman, D., Kathalingam, A., Prasanna, K., Kim, H., Karuppasamy, K.
Pages: 224-227
Publication date: 2019
Peer-reviewed: Yes

Publication information
Journal: Materials Letters
Volume: 237
ISSN (Print): 0167-577X
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.68 SJR 0.782 SNIP 0.887
Web of Science (2017): Impact factor 2.687
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.51 SJR 0.754 SNIP 0.939
Web of Science (2016): Impact factor 2.572
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.5 SJR 0.767 SNIP 0.993
Web of Science (2015): Impact factor 2.437
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.64 SJR 0.877 SNIP 1.28
Web of Science (2014): Impact factor 2.489
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.41 SJR 0.824 SNIP 1.221
Web of Science (2013): Impact factor 2.269
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.41 SJR 0.917 SNIP 1.383
Web of Science (2012): Impact factor 2.224
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.54 SJR 1.014 SNIP 1.546