QUESTION

I have a question to authors of paper 36 - Alexandrova et al. :

PREPARATION AND CHARACTERIZATION OF BaTi0.89 Sn0.11O3 AND Ba0.89Sn0.11TiO3

Mihaela Alexandrova, Lyuben Lakov, Vladimir Blaskov

Dear colleagues,

Can you exclude placement of some of Sn atoms in interstitial positions? Especially in the case of Ba replacement where the behavior seems more complex? Can you also perform EXAFS to possibly determine distances of Sn to neighbors?

With kind regards,

Karel Carva

Answers:

Dear Colleague,

In our opinion, the placement of Sn atoms in the interstitial positions of $BaTiO_3$ is excluded. We will note that the production of metal Sn atoms is possible only if working in a reduction medium - ie. when using reducing gases or reducing compounds. According to literature data, in case of doped $BaTiO_3$ ceramics, there are two possible variants: (i) as the doping metal ions can replace either barium - A sites; or (ii) titanium - B sites. So far in our available literature we have not encountered cases of the doping imbeded ion in the interstitial positions of the crystal lattice of $BaTiO_3$ in the doping with metal ions.

It is possible to determine the distances of Sn atoms to its neighbors by EXAFS, but this must be done by a very experienced specialist when working with a synchrotron. Unfortunately, in our country we still do not have such equipment.

Citation: *Lingxia Li, Ruijie Wang, Shihui Yu, Zheng Sun, Haoran Zheng, "Novel tin-doped $BaTiO_3$ ceramics with non-reducibility and colossal dielectric constant", Materials Latters 220, (2018), pp119-121.*