

Programme & The Book of Abstracts

Twenty-first Annual Conference

YUCOMAT 2019

&

Eleventh World Round Table Conference

on Sintering –

Science of Sintering & Its Future: Fifty Years Later

WRTCS 2019

Herceg Novi, Montenegro September 2 - 6, 2019

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Materials Research Society of Serbia
&
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X-ray spectra, electron structure and physical properties of the Ce_2ScSi_2 and CeScSi compounds

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Energy structure of the valence band of the Ce_2ScSi_2 and CeScSi compounds was studied by the methods of the high-energy spectroscopy (XPS, XES and XAS). Dependence of magnetic susceptibility $\chi(\mathbf{T})$ of the Ce_2ScSi_2 compound within wide temperature range corresponds to the Curie-Weiss law. Based upon temperature dependences $\chi(\mathbf{T})$ and $\alpha(\mathbf{T})$, together with calculated valence of Ce by the data of the absorption L_{III} -spectroscopy, a conclusion has been made on the existence of the fluctuating transition, «State of intermediate valence - Condo-systems», in the Ce_2ScSi_2 compound. The calculations of electron energy bands $E(k)$ and partial DOS for Ce_2ScSi_2 and CeScSi compounds were performed by the semi relativistic linear muffin-tin orbital method without considerations of spin-orbit interactions. A satisfactory agreement between theoretical and experimental data is achieved.

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