Review article about magnetic thermopower effect in nanostructures published

Temperature differences in nanostructures can generate electric voltages which depend on the magnetic properties of such structures. These electric voltages can be utilized for new kind of data storages, for temperature sensors on the nanometer scale, for the generation of spin currents or for the extension of existing measurement techniques investigating magnetic surfaces. Here, the so-called tunnel magneto-Seebeck effect is the key, which has been discovered in 2011 by researchers of the Bielefeld University in collaboration with the PTB Braunschweig and the Universities of Göttingen und Gießen[1]. The research of the Bielefeld scientists within the recent years led to very high effect sizes[2].

Dr. Timo Kuschel, habilitand at the Bielefeld University, and cooperation partners have now published a review article about the tunnel magneto-Seebeck effect. They concentrated on the history of the discovery, the optimization of the effect size, first applications and additional physical aspects connected to this effect. The article has been published in the special issue 'Spin Caloritronics' in the Journal of Physics D: Applied Physics[3].

T. Kuschel, M. Czerner, J. Walowski, A. Thomas, H. W. Schumacher, G. Reiss, C. Heiliger, M. Münzenberg: Tunnel magneto-Seebeck effect, Journal of Physics D: Applied Physics 52, 133001 (2019), DOI: 10.1088/1361-6463/aafa5f, Link: https://doi.org/10.1088/1361-6463/aafa5f

[1] Press release in German 'Mit Wärme kann man rechnen' (25.07.2011), Link: https://bit.ly/2yQNpFx

[2] Press release 'Spin current from heat: new material increases efficiency' (20.11.2017), Link: https://bit.ly/2LECbe5

[3] Special issue 'Spin Caloritronics', Link: https://bit.ly/2G3qHif