

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**Thermomagnetic coefficients in terms of thermodynamics**<sup>1</sup> AN-DREI SERGEEV, MICHAEL REYZER, VLADIMIR MITIN, University at Buffalo — Nernst-Ettingshausen coefficient in relatively strong magnetic fields is obtained and expressed via thermodynamics parameters. The relation is general and applicable to any strongly interacting systems. Contrary to a number of recent publications, this relation clearly demonstrates that the magnetization currents as well as superconducting currents do not transfer any entropy and do not participate in thermomagnetic transport. The developed machinery is applied to thermomagnetic effects in the fluctuation area. The results demonstrate that in the interacting Fermi systems the thermomagnetic coefficient is always proportional to the ratio of  $kT$  to the Fermi energy.

<sup>1</sup>work is supported by NSF

Andrei Sergeev  
University at Buffalo

Date submitted: 15 Nov 2013

Electronic form version 1.4