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**Alexander Yu. Solynin\*** ([alex.solynin@ttu.edu](mailto:alex.solynin@ttu.edu)), Texas Tech University, Department of Mathematics and Statistics, Broadway and Boston, Lubbock, TX 79409-1042. *Reduced capacities and optimal shapes of droplets in the channel*. Preliminary report.

In this talk, we present some results obtained in collaboration with Mark Mineev-Weinstein (NMC, Los Alamos) and Giovanni Vasconcelos (Federal University of Pernambuco, Recife, Brasil) during our stay at the Institut Mittag-Leffler under the program “Complex Analysis and Integrable Systems”, Fall 2011. Let  $E$  be a compact set (called “droplets”) in the channel  $S = \{z : |\Im z| < 1\}$ . We will discuss different ways to define a capacity of  $E$  with respect to  $S$ . We also will give several sharp estimates of these capacities in terms of the area and some other geometric characteristics of droplets and discuss shapes of the extremal configurations. (Received January 17, 2012)