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To ESF
To the attention of Mrs Chantal Durant
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Report on my short visit travel to Helsinki

Dear Mrs Durant,

from Monday 22nd August - Thursday 25th August I visited the Institute for Theoretical Physics at the University of Helsinki to conduct an intense scientific exchange with Professors Keijo Kajantie and Esko Keski-Vakkuri and their students Janne Alanen, Ville Suur-Uski and Ville Keränen.

During this visit, I gave a seminar talk on my recent work on gauge/gravity duality and extensions of the AdS/CFT correspondence, in particular on holographic superconductors from probe branes. Details of this approach were subsequently discussed in further depth, in particular the recent results of our group on non-universal contributions to the shear viscosity in anisotropic holographic superconductors. Professor Kajantie then informed me about the recent work of his group on frequency and wave number dependence of the shear correlator in strongly coupled hot Yang-Mills theory, and we compared our approaches, devising avenues for further research. Moreover, with Prof. Kajantie we performed a detailed comparison of the 'top-down' and 'bottom-up' approaches to gauge/gravity duality, which are followed by our groups, respectively. Moreover, we had a general discussion on universality within gauge/gravity duality.

Moreover, with Prof. Keski-Vakkuri we discussed our mutual recent results on time-dependence and thermalization in gauge/gravity duality. While our Munich group has been looking at timelike correlators in a moving mirror geometry, the Prof. Keski-Vakkuri has been studying spacelike correlators and the entanglement entropy in a Vaidya-type metric. The discussion lead to interesting cross-fertilizations between the two approaches, which has raised both new important questions as well as methods to tackle them in both of them. We expect this to lead to important progress in the new field of thermalization in gauge/gravity duality. In addition, with Prof. Keski-Vakkuri we also discussed

how their recent results on extended objects, such as solitons, in holographic superconductors may be implemented in top-down approaches followed by the Munich group.

It was agreed to intensify the exchange by future mutual visits between the members of the Helsinki and the Munich group. It is expected that these will lead to joint publications.

With best regards,

Priv.-Doz. Dr. Johanna Erdmenger