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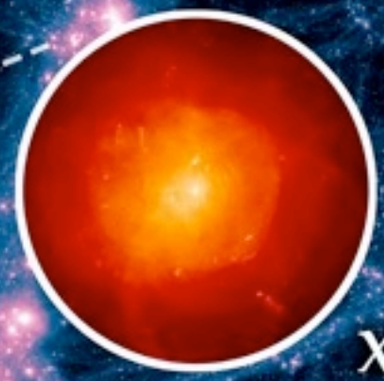
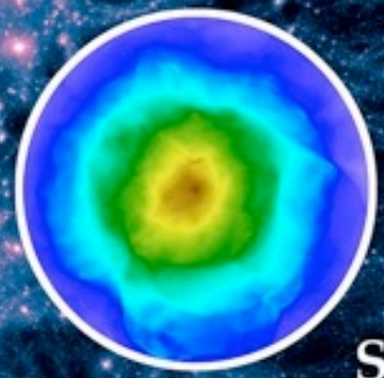
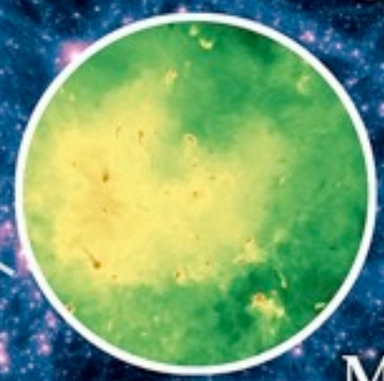
HITS

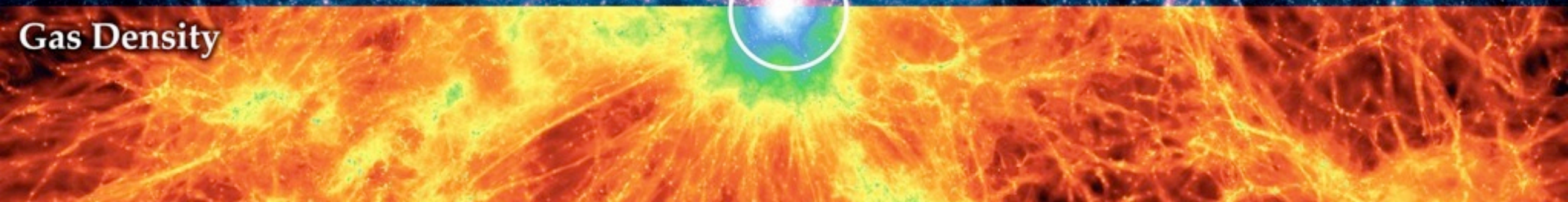
The Illustris Simulation

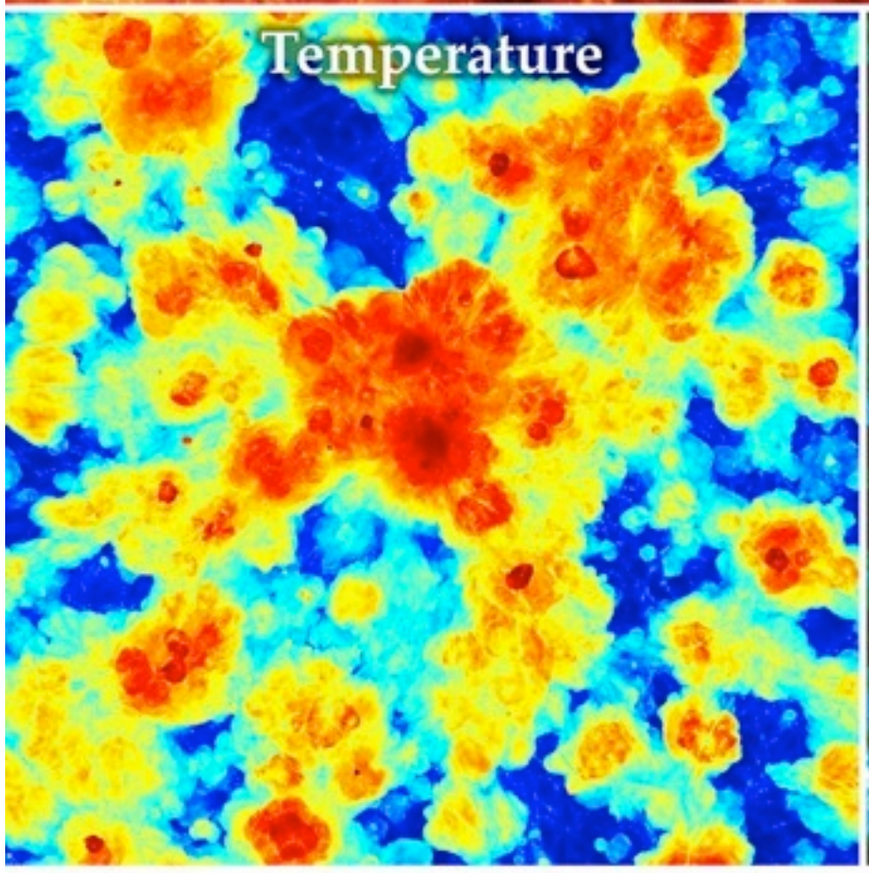
M. Vogelsberger S. Genel V. Springel P. Torrey D. Sijacki D. Xu G. Snyder S. Bird D. Nelson L. Hernquist

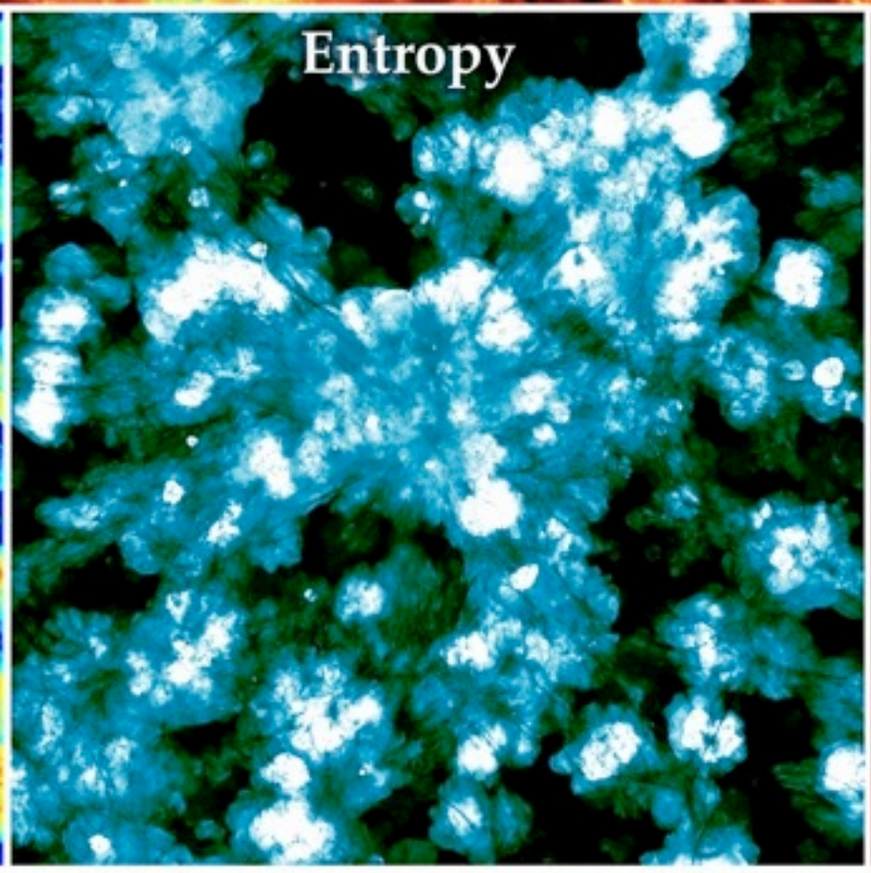


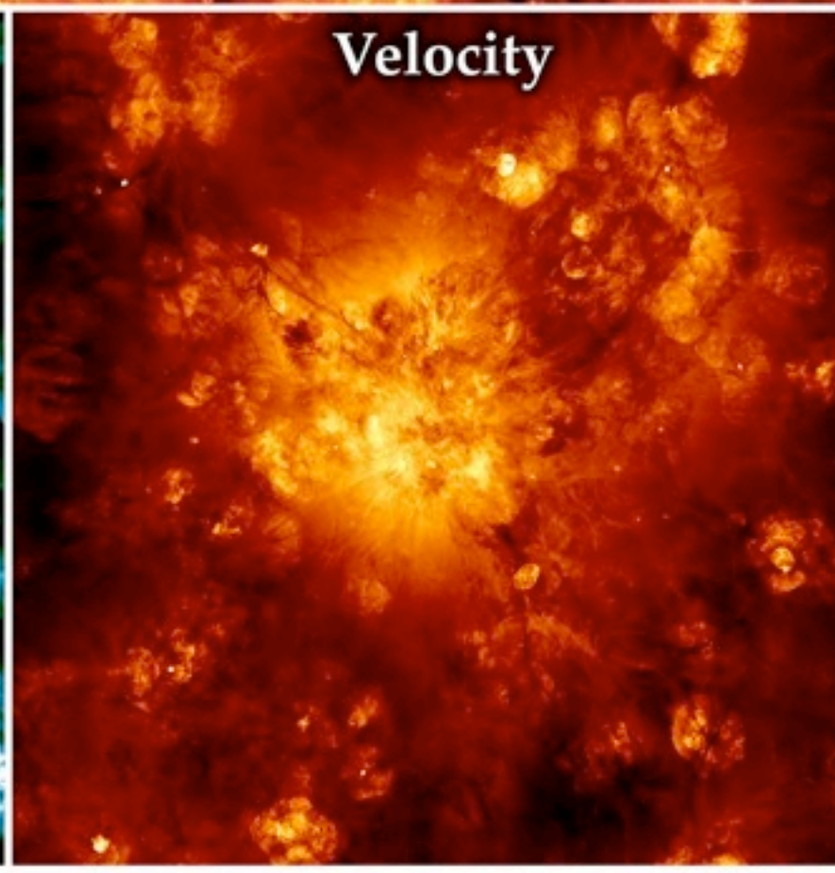












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Annihilation

Metal

k Matter Density

Density

Temperature

Entropy

Velocity

Universitätsplatz Heidelberg

KunstHeidelberg sind:
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SPRACH
RAUM
KUNST

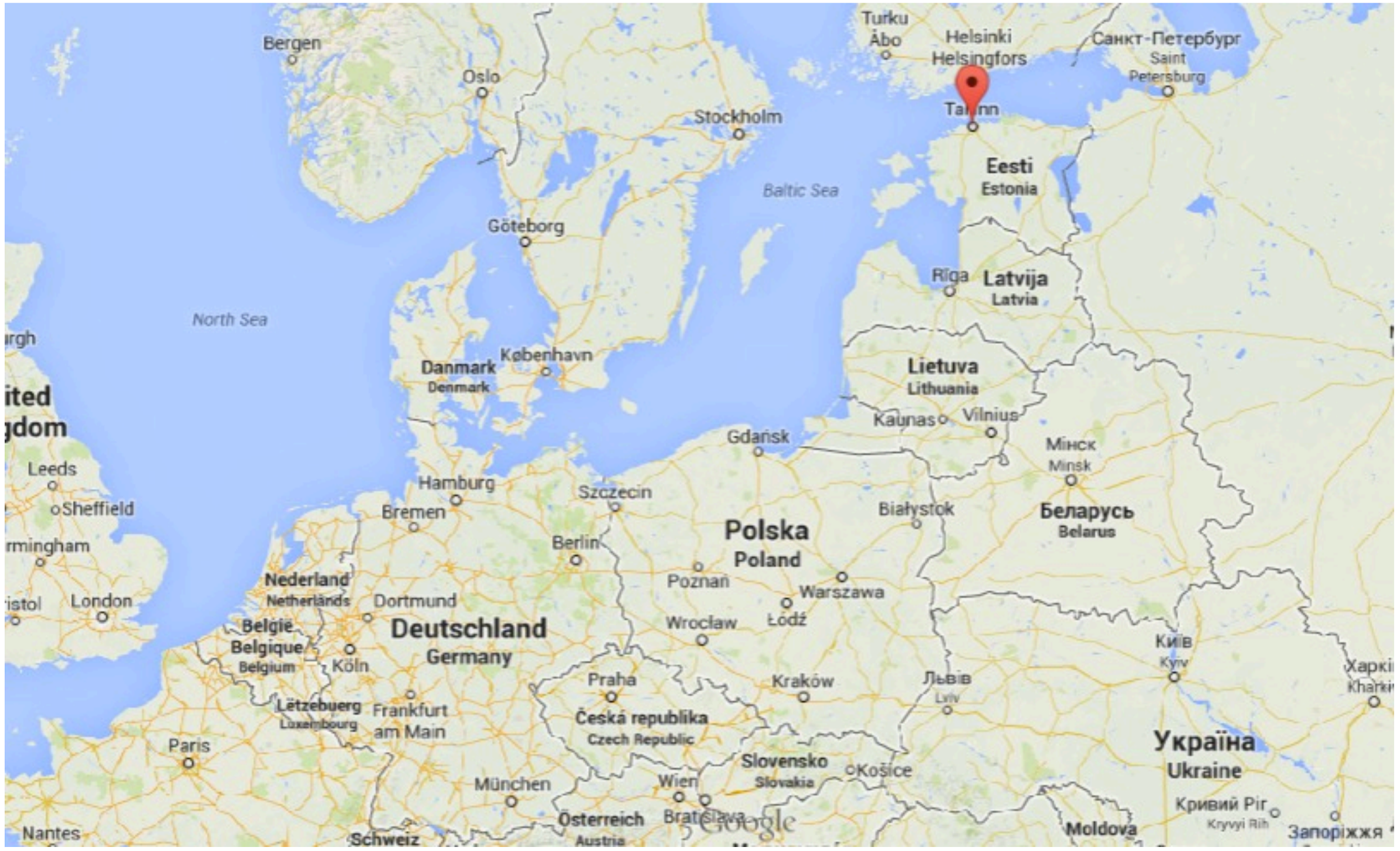
11⁰⁰ ERÖFFNUNG MIT
"LUOGU" (Gongstrad)

11⁴⁰ PIPA-KONZERT
mit Qi Wu

12⁰⁰ NANGUAN-KONZERT
mit Qi Wu

12³⁰ TAIJIQUAN SCHWERT-FORM
mit Liu Yuanhua

13⁰⁰ QiGONG - HIMMEL, ERDE, MENSCH
mit GUDULA LINCK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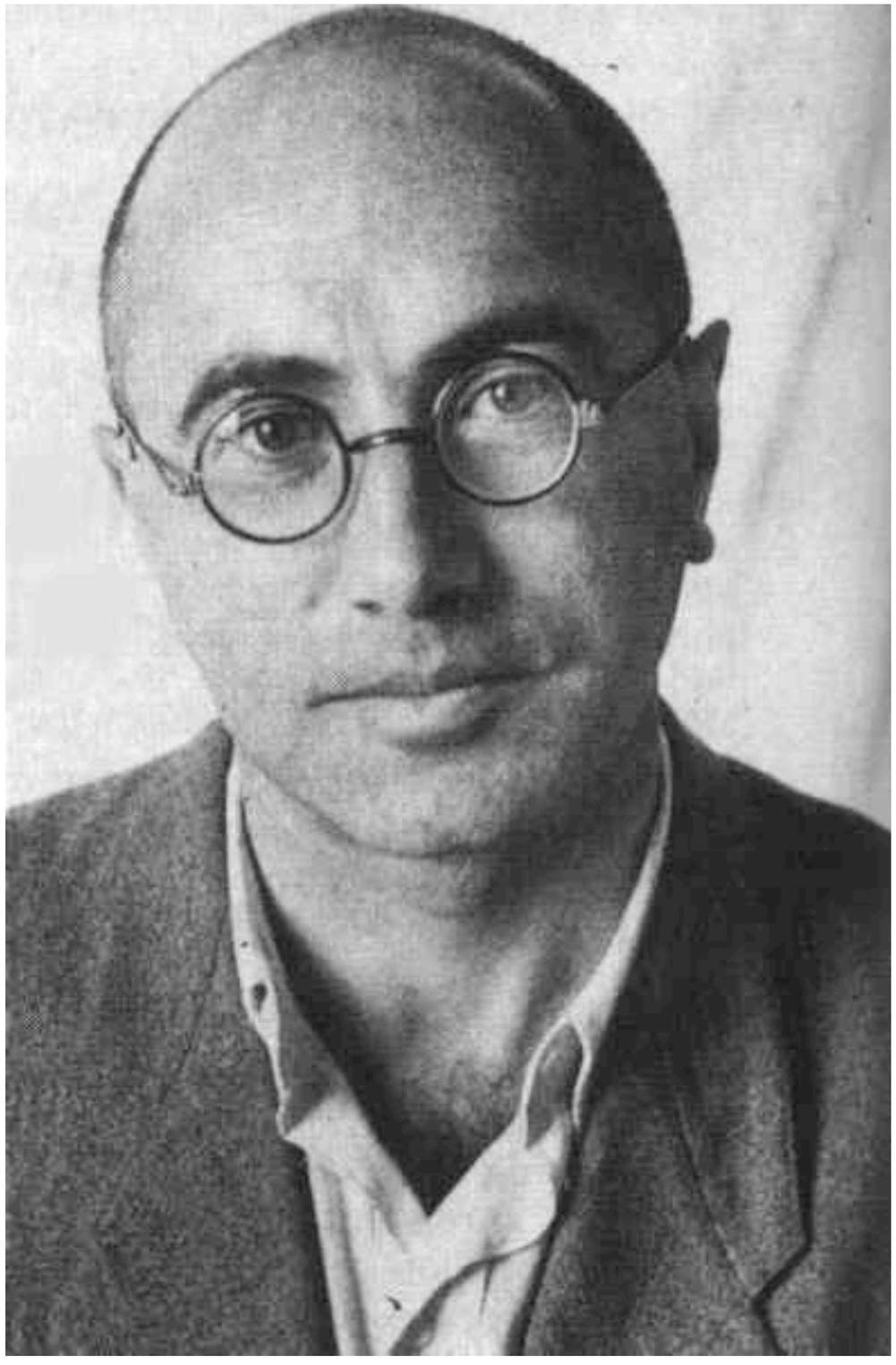


Yakov B. Zeldovich

IAU Symposium 308

The Zeldovich Universe

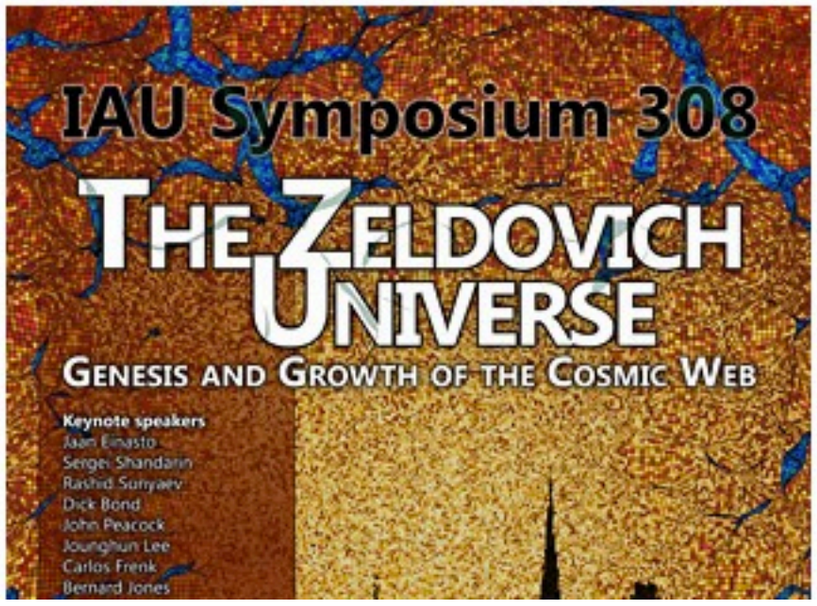
Genesis and Growth of the Cosmic Web

23-28 June 2014
Tallinn, Estonia

Key dates

Abstract submission	May 7, 2014
Early registration closes	April 30, 2014
Late registration closes	June 15, 2014

TARTU OBSERVATORY
space research centre



Welcome!

It will be 100 years since the birth of Yakov Zeldovich, whose seminal work paved the way towards a theoretical understanding of the complex weblike patterns that have been observed in our Universe.

Impressive progress of observational studies, of modelling and simulations and of analytical work has led to revolutionary new insights into the structure and emergence of the Cosmic Web. With the coming years marked by major observational developments - in terms of large new telescopes, instruments and corresponding versatile surveys - and with the continuing growth of computational resources, the

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HELSINKI INSTITUTE OF PHYSICS

SELF-SIMILARITY AND UNIVERSALITY OF VOIDS IN SIMULATION AND SDSS DATA

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INTRODUCTION

Most cosmological studies using voids assume that they are *self-similar*, meaning that the density distribution in each void can be rescaled by the void size, and that the rescaled density profiles no longer depend on the void size or redshift. Some studies also assume that the rescaled profile is *universal*—that is, the rescaled void properties are also independent of the properties of the galaxy population in which the voids were identified. Recent studies of the evidence for these assumptions have reached contradictory conclusions [1, 2]. The best method of measuring density profiles is also not yet established. We address these issues by studying voids in simulation as well as real galaxy data.

JUBILEE SIMULATION DATA

The Jubilee N-body simulation has 6000^3 particles in a box volume of $(6\,h^{-1}\mathrm{Gpc})^3$, i.e. a minimum resolved halo mass of $1.49 \times 10^{12}\,h^{-1}\mathrm{M}_\odot$. It uses a WMAP5 cosmology

The resulting profiles depend on the void selection criteria:

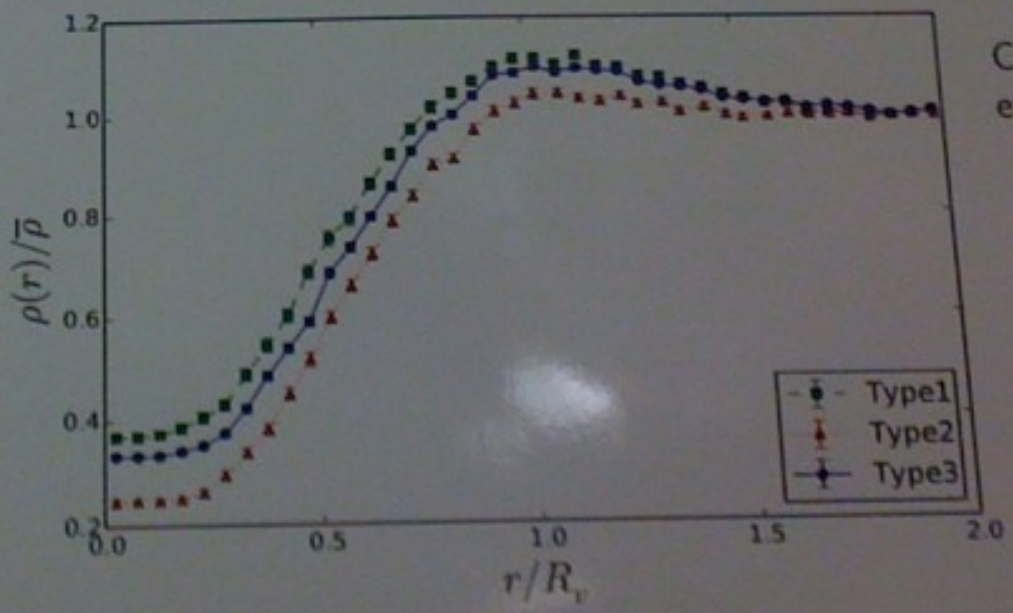

Figure 1: Stacked density profiles for simulated voids of different types (i.e., different selection cuts on the void sample).

These profiles agree with measures of the gravitational potential [6].

SELF-SIMILARITY OF VOIDS

COMPARISON WITH DATA

Comparison of simulation results excellent agreement.

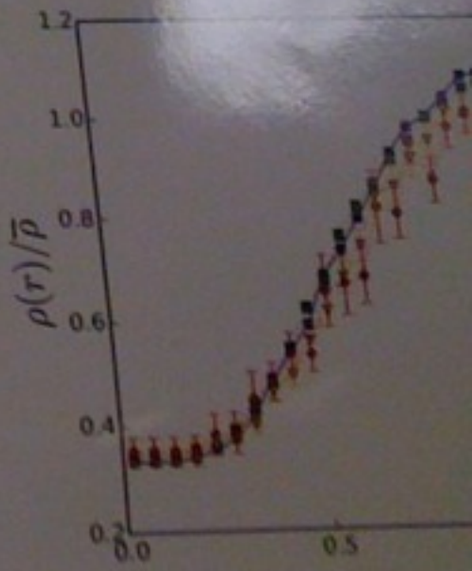

Figure 5: Stacked density profile obtained from SDSS data.

Small residual differences uncertainties or residual


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