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Employment

Professor

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University of Helsinki
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1 Aug 2021 → present

Supervisor for doctoral programme

Doctoral Programme in Particle Physics and Universe Sciences
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University of Sussex
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Research output

Revised bounds on local cosmic strings from NANOGraV observations

Kume, J. & Hindmarsh, M., 3 Dec 2024, In: Journal of Cosmology and Astroparticle Physics. 2024, 12, 23 p., 001.

Primordial acoustic turbulence: Three-dimensional simulations and gravitational wave predictions

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A-B Transition in Superfluid ^3He and Cosmological Phase Transitions

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Nanofluidic Platform for Studying the First-Order Phase Transitions in Superfluid Helium-3

Heikkinen, P. J., Eng, N., Levitin, L. V., Rojas, X., Singh, A., Autti, S., Haley, R. P., Hindmarsh, M., Zmeev, D. E., Parpia, J. M., Casey, A. & Saunders, J., Jun 2024, In: Journal of Low Temperature Physics. 215, 5-6, p. 477-494 18 p.

General relativistic bubble growth in cosmological phase transitions

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Shallow relic gravitational wave spectrum with acoustic peak

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Multi-messenger constraints on Abelian-Higgs cosmic string networks

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Reconstructing physical parameters from template gravitational wave spectra at LISA: first order phase transitions

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Prospects for LISA to detect a gravitational-wave background from first order phase transitions

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Supercooling of the A phase of ^3He

Tian, Y., Lotnyk, D., Eyal, A., Zhang, K., Zhelev, N., Abhilash, T. S., Chavez, A., Smith, E. N., Hindmarsh, M., Saunders, J., Mueller, E. & Parpia, J. M., 10 Jan 2023, In: Nature Communications. 14, 1, 9 p., 148.

Decay of acoustic turbulence in two dimensions and implications for cosmological gravitational waves

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Generation of gravitational waves from freely decaying turbulence

Auclair, P., Caprini, C., Cutting, D., Hindmarsh, M., Rummukainen, K., Steer, D. A. & Weir, D. J., Sept 2022, In: Journal of Cosmology and Astroparticle Physics. 9, 62 p., 029.

Thermal suppression of bubble nucleation at first-order phase transitions in the early Universe

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Observational prospects for phase transitions at LISA: Fisher matrix analysis

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Scaling Density of Axion Strings

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Gravitational waves from first order cosmological phase transitions in the Sound Shell Model

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Type I Abelian Higgs strings: Evolution and cosmic microwave background constraints

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Scaling from gauge and scalar radiation in Abelian-Higgs string networks

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Breaking symmetry, breaking ground

Hindmarsh, M., Oct 2016, In: Journal of Physics A: Mathematical and Theoretical. 49, 41, 3 p., 411001.

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Science with the space-based interferometer eLISA. II: gravitational waves from cosmological phase transitions

Caprini, C., Hindmarsh, M., Huber, S., Konstandin, T., Kozaczuk, J., Nardini, G., No, J. M., Petiteau, A., Schwaller, P., Servant, G. & Weir, D. J., Apr 2016, In: Journal of Cosmology and Astroparticle Physics. 2016, 04, 35 p., 001.

Numerical simulations of acoustically generated gravitational waves at a first order phase transition

Hindmarsh, M., Huber, S. J., Rummukainen, K. & Weir, D. J., 22 Dec 2015, In: Physical Review D : Particles, Fields, Gravitation and Cosmology. 92, 12, 22 p., 123009.

The bispectrum of cosmic string temperature fluctuations including recombination effects

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Dark matter with topological defects in the Inert Doublet Model

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Gravitational waves from cosmological first order phase transitions

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Constraining topological defects with temperature and polarization anisotropies

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Improving cosmic string network simulations

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Strictly anomaly mediated supersymmetry breaking

Hindmarsh, M. & Jones, D. R. T., 23 Apr 2013, In: Physical Review D : Particles, Fields, Gravitation and Cosmology. 87, 7, p. 075022 18 p.

Exact Scale-Invariant Background of Gravitational Waves from Cosmic Defects

Figueroa, D. G., Hindmarsh, M. & Urrestilla, J., 6 Mar 2013, In: Physical Review Letters. 110, 10, p. 101302 5 p.

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Projects

Searching for early universe phase transitions with gravitational waves

Hindmarsh, M. (Project manager), Giombi, L. (Participant) & Mäki, M. M. K. (Participant)
Academy of Finland, Suomen Akatemia Talous/Paula Pesola
01/09/2024 → 31/12/2024

Searching for Phase Transitions in the Early Universe

Hindmarsh, M. (Project manager)
01/10/2015 → 30/09/2019