

Ozan Burak Ericok

Department of Materials Science and Engineering
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RESEARCH INTERESTS

Phase transitions, statistical topology, Bayesian inference, inverse problems.

EDUCATION

University of California, Davis, CA Ph.D. in <i>Materials Science and Engineering</i> Thesis: Statistical topology of configuration spaces of hard disks	09/18-present
Boğaziçi University, Istanbul, TR M.S. in <i>Mechanical Engineering</i> Thesis: Characterization of nanoparticle aggregates using inverse formulation	09/14-06/17
Boğaziçi University, Istanbul, TR B.S. in <i>Mechanical Engineering</i> Thesis I: Heat engine based organic Rankine cycle Thesis II: Passive cooling of concentrated photovoltaic cells	09/09-06/14

PROFESSIONAL EXPERIENCE

Graduate Researcher, Materials Science and Engineering, UC Davis, CA Studying statistical topology of hard disks systems to better understand the nature of phase transitions in general. Advised by Prof. Jeremy K. Mason	09/18-present
Research Assistant, Mechanical Engineering, Boğaziçi University, Istanbul, TR Studied deterministic and statistical characterization of nanoparticle aggregates based on optical light scattering behavior. Advised by Prof. Hakan Ertürk	09/14-09/18

TEACHING EXPERIENCE

Boğaziçi University, Mechanical Engineering Advanced Engineering Mathematics I: Teaching assistant of a graduate level course on systems of linear equations, ordinary differential equations, Fourier and Laplace transform etc. Advanced Engineering Mathematics II: Teaching assistant of a graduate level course on complex analysis, partial differential equations, Green's functions etc. Advanced Fluid Mechanics: Teaching assistant of a graduate level course on incompressible and compressible flows, perturbation theory, viscous flow, approximate solution of Navier-Stokes equations. Fluid Mechanics II: Teaching assistant of a undergraduate level course on basic theory of turbo-machinery, aerodynamics, compressible flow, shock waves etc. Radiative Heat Transfer: Teaching assistant of a graduate level course on radiative properties of solids and liquids, radiative transfer between surfaces, radiation combined with conduction and convection.	12/14-09/18
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HONORS/AWARDS

Nominated (1 of 20) to attend 70 th Lindau Nobel Laureate Meeting by University of California	2020
Graduate student fellowship, MSE, UC Davis	2018
Dean's Honor list	2014

PUBLICATIONS

Peer Reviewed Journals

- Ericok, O.B., Ozbek, A.K., Cemgil, A.T. and Erturk, H., 2019. Gaussian Process and Design of Experiments for Surrogate Modeling of Optical Properties of Fractal Aggregates. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 239, p.106643.
- Eriçok, O.B. and Ertürk, H., 2018. Optical characterization limits of nanoparticle aggregates at different wavelengths using approximate Bayesian computation. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 213, pp.113-118.
- Ericok, O.B., Cemgil, A.T. and Erturk, H., 2018. Approximate Bayesian computation techniques for optical characterization of nanoparticle clusters. *JOSA A*, 35(1), pp.88-97.
- Ericok, O.B. and Ertürk, H., 2017. Inverse characterization of nanoparticle clusters using unpolarized optical scattering without ex-situ measurements. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 198, pp.117-129.

Conference Proceedings

- Eriçok, O.B. and Ertürk, H., 2016, November. Characterization of nanoparticle aggregates using Bayesian inference via light scattering experiments. *In ASME 2016 International Mechanical Engineering Congress and Exposition* (pp. V008T10A026-V008T10A026). American Society of Mechanical Engineers.

PRESENTATIONS

- Ericok O.B. and Mason, J. K, Topology of the configuration space of hard disk systems, SIAM Conference on Mathematical Aspects of Materials Science (MS20), Bilbao, Spain (abstract submitted).
- Ericok O.B. and Mason, J. K, Preliminary connectedness graph of the configuration space of hard disk systems, APS March Meeting 2020, Denver, CO (abstract submitted).
- Ericok, O.B. and Ertürk, H., Inverse characterization of nanoparticle clusters using unpolarized optical scattering without ex-situ measurements, at the 8th International Symposium on Radiative Transfer, RAD-16, Cappadocia, Turkey.

VOLUNTEERING

Education and Research Community (EREC), Boğaziçi University, Istanbul, TR

EREC aims to provide educational and motivational support to both children and college students, and aims to bring researchers and college students together as early as possible. Specific activities include free tutoring for children of age 7-14 to support their educational and social skills and organizing series of research seminars.

Educational Funds for Elementary Schools (ILKYAR), Middle East Technical University, Ankara, TR

ILKYAR is a non-profit organization aiming to stimulate educational and scientific activities in rural schools in Turkey. The mission is to create opportunities for students in rural areas to commit themselves to their education. I volunteered for various kinds of activities including designing scientific experiments for children, setting up memorial libraries, and organizing summer science camps for children and teachers. My current responsibilities include improving the scientific content of the current activities, and designing new content.