**Ozan Burak Ericok**

Department of Materials Science and Engineering
University of California, Davis
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## RESEARCH INTERESTS

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

## EDUCATION

**University of California, Davis**, CA 09/18-present
**Ph.D.** in *Materials Science and Engineering*
Thesis: Statistical topology of configuration spaces of hard disks

**Boğaziçi University**, Istanbul, TR 09/14-06/17
**M.S.** in *Mechanical Engineering*
Thesis: Characterization of nanoparticle aggregates using inverse formulation

**Boğaziçi University**, Istanbul, TR 09/09-06/14
**B.S.** in *Mechanical Engineering*
Thesis I: Heat engine based organic Rankine cycle
Thesis II: Passive cooling of concentrated photovoltaic cells

## PROFESSIONAL EXPERIENCE

**Graduate Researcher,** *Materials Science and Engineering*, UC Davis, CA 10/18-present
Studying statistical topology of hard disks systems to better understand the nature of phase transitions in general.
Advised by Prof. Jeremy K. Mason

**Research Assistant**, *Mechanical Engineering*, Boğaziçi University, Istanbul, TR 09/14-09/18
Studied deterministic and statistical characterization of nanoparticle aggregates based on optical light scattering behavior.
Advised by Prof. Hakan Ertürk

## TEACHING EXPERIENCE

**University of California, Davis,** *Materials Science and Engineering* 01/20-03/20

**Advanced Materials Characterization:** Teaching assistant of a graduate level course on various characterization methods based on diffraction, spectroscopy and microscopy.

**Boğaziçi University,** *Mechanical Engineering* 12/14-09/18

**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.

## HONORS/AWARDS

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| Nominated (1 of 20) to attend 70th 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 accepted).

Ericok O.B. and Mason, J. K, Preliminary connectedness graph of the configuration space of hard disk systems, APS March Meeting 2020, Denver, CO.

Ericok, O.B., Cemgil, A.T, and Ertürk, H., Optical characterization limits of nanoparticle aggregates at different wavelengths using Approximate Bayesian Computation, at the 2nd Thermal and Fluids Engineering Conference, TFEC2017, Las Vegas, NV, USA.

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.