Giresun University, Faculty of Arts and Sciences

Department of Mathematics

Online Colloquiums – 4

Virtual Invited Speaker

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ResearchGate Profile

Moderator

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: *Modelling of Mineral Efficiency in Geothermal*

: *December 8, 2025*

: *19.00 (Istanbul Time), 17.00 (Norway Time)*

: https://teams.live.com/meet/9322748198175?p=CCjAuBxaowUnbHGk2Z

: The Biga Peninsula in Western Anatolia hosts significant geothermal resources. In this study, we used Data Envelopment Analysis (DEA) to model mineral efficiency in geothermal waters for the first time. Gold, silver, and lithium concentrations were treated as outputs, while temperature, pH, electrical conductivity, and salinity were inputs. Two output-oriented models—Charnes Cooper Rhodes (CCR) and Banker Charnes Cooper (BCC)—were applied across 21 geothermal sites (50 models in total). Nine sites were found fully efficient (100%), with average technical and total efficiencies of 70% and 68.5%, respectively. The results demonstrate that DEA is an effective tool for assessing the mineral extraction potential of geothermal systems in the Biga Peninsula.