

## Prof. Dr. DEREK KEITH BAKER

### Kişisel Bilgiler

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Publons / Web Of Science ResearcherID: H-2021-2015

ScopusID: 16041579400

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### Eğitim Bilgileri

Doktora, The University of Texas at Austin, Mechanical Engineering, Amerika Birleşik Devletleri 1996 - 2000

Yüksek Lisans, The University of Texas at Austin, Mechanical Engineering, Amerika Birleşik Devletleri 1994 - 1996

Lisans, Virginia Polytechnic Institute and State University, Mechanical Engineering, Amerika Birleşik Devletleri 1987 - 1992

### Yaptığı Tezler

Doktora, An investigation of calcium carbonate scaling rates based on experiments and modeling, The University of Texas At Austin, Mechanical Engineering, 2000

Yüksek Lisans, Software to predict scaling problems in solar hot water systems, The University Of Texas At Austin, Mechanical Engineering, 1996

### Araştırma Alanları

Makina Mühendisliği, Enerji, Güneş Enerjisi, Mühendislik ve Teknoloji

### Akademik Unvanlar / Görevler

Prof. Dr., Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendisliği Bölümü, 2015 - Devam Ediyor

Doç. Dr., Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendisliği Bölümü, 2014 - 2015

Doç. Dr., Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendisliği Bölümü, 2011 - 2012

Yrd. Doç. Dr., Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Makina Mühendisliği Bölümü, 2003 - 2010

Yrd. Doç. Dr., Humboldt State University, Natural Sciences, Environmental Systems Engineering, 2000 - 2003

### Yönetilen Tezler

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## SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- I. **Hybridization of Concentrated Solar Thermal, Geothermal, and Biomass: Case Study on Kizildere-2 Geothermal Power Plant**  
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- IV. **Geometric design of micro scale volumetric receiver using system-level inputs: An application of surrogate-based approach**  
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- V. **Off-design performance of micro-scale solar Brayton cycle**  
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- VI. **Gradient-based optimization of micro-scale pressurized volumetric receiver geometry and flow rate**  
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- VII. **Modeling heat exchangers with an open source DEM-based code for granular flows**  
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- VIII. **Development and analysis of the novel hybridization of a single-flash geothermal power plant with biomass driven sco2-steam rankine combined cycle**  
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- X. **Solar-thermal driven drying technologies for large-scale industrial applications: State of the art, gaps, and opportunities**  
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- XI. **A Monte Carlo method to solve for radiative effective thermal conductivity for particle beds of various solid fractions and emissivities**  
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- XIV. **Sizing of Photovoltaic-Wind-Battery Hybrid System for a Mediterranean Island Community Based on Estimated and Measured Meteorological Data**  
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- XV. **Technoeconomic and exergy analysis of a solar geothermal hybrid electric power plant using a novel combined cycle**  
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- XVI. **Numerical Analysis of Phase Change Material Characteristics Used in a Thermal Energy Storage Device**  
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- XVII. **Solar energy potentials in strategically located cities in Nigeria: Review, resource assessment and PV system design**

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- XVIII. **Energetic and economic performance analyses of photovoltaic, parabolic trough collector and wind energy systems for Multan, Pakistan**  
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- XIX. **A study to incorporate renewable energy technologies into the power portfolio of Karachi, Pakistan**  
Ali S. M. H., Zuberi M. J. S., Tariq M. A., BAKER D. K., Mohiuddin A.  
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- XX. **Modeling and simulations of a micro solar power system**  
Pehlivanurk C., Ozkan O., BAKER D. K.  
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- XXI. **Two dimensional transient coupled analysis of a finned tube adsorbent bed for a thermal wave cycle**  
ÇAĞLAR A., Yamali C., BAKER D. K.  
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- XXII. **MEASUREMENT OF SOLAR RADIATION IN ANKARA, TURKEY**  
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- XXIV. **A two-energy equation model for dynamic heat and mass transfer in an adsorbent bed using silica gel/water pair**  
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- XXV. **Numerical investigation of coupled heat and mass transfer inside the adsorbent bed of an adsorption cooling unit**  
Solmus I., Rees D. A. S., Yamali C., Baker D., KAFTANOĞLU B.  
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- XXVI. **COP trends for ideal thermal wave adsorption cooling cycles with enhancements**  
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- XXVIII. **MODELING OF BIPOLAR PLATES FOR PROTON EXCHANGE MEMBRANE FUEL CELLS**  
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- XXIX. **International Summer Engineering Program on fuel cells for undergraduate engineering students**  
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- XXXI. **Thermodynamic limits to thermal regeneration in adsorption cooling cycles**  
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**XXXII. Predicted impact of collector and zeolite choice on the thermodynamic and economic performance of a solar-powered adsorption cooling system**

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**XXXIII. Identifying and reducing scaling problems in solar hot water systems**

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## **Diğer Dergilerde Yayınlanan Makaleler**

**I. Normalized Thermodynamic Model for Intermittent Energy Systems and Application to Solar-Powered Adsorption Cooling Systems**

Taylan O., Baker D. K., Kaftanoglu B.

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## **Kitap & Kitap Bölümleri**

**I. Technical Study of a Hybrid Solar-Geothermal Power Plant and its Application to a Thermal Design Course**

BAKER D. K., Özalevli C., Sömek K.

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**II. Modeling and Transient Simulations of 30 MW Solar Thermal Electric Power Plants in the Northeast Mediterranean Region**

BİLYAZ S., Singh R., KARSHENASS A., BAKER D. K.

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## **Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar**

**I. \_The Investigation of Mechanical and Thermal Properties of Sintered Bauxite and Sand Particles as Heat Transfer and Storage Media**

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- II. **A Simulation Tool for Renewable Energy Supported Buildings**  
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- III. **DESIGN METHODOLOGY OF A CONCENTRATING SOLAR VOLUMETRIC RECEIVER**  
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- IV. **Water Sludge Drying: Modelling of a Solar Thermal Plant for a Solar Vacuum Dryer**  
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- V. **Hybridization of a geothermal power plant with biomass driven sCO<sub>2</sub> cycle**  
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- VI. **Development of View Factor Correlations for Modeling Thermal Radiation in Solid Particle Solar Receivers Using CFD-DEM**  
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- VII. **Concentrating Solar Thermal: Global Trends and Opportunities in Turkey**  
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- VIII. **NUMERICAL COMPARISON AND SIZING OF SENSIBLE AND LATENT THERMAL ENERGY STORAGE FOR COMPRESSED AIR ENERGY STORAGE SYSTEMS**  
Kaya M., TARI İ., BAKER D. K.  
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- IX. **TECHNICAL FEASIBILITY STUDY OF A SOLAR GEOTHERMAL HYBRID ELECTRIC POWER PLANT USING A COMBINED CYCLE**  
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- X. **Proposal of a Novel Gravity-Fed, Particle-Filled Solar Receiver**  
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- XI. **Study Case of Solar Thermal and Photovoltaic Heat Pump System for Different Cities in Turkey**  
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- XII. **Solar Thermal Electricity Overview Activities in Turkey and New METU GÜNAM Laboratory ODAK**  
BAKER D. K.  
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- XIII. **Experimental analysis of energy storage device using phase change material integrated with a milk storage system**  
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- XIV. **A methodology for designing tonpiz type transducers**  
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- XV. **Numerical Analysis of Phase Change Material Characteristics in a Thermal Energy Storage Heat Exchanger**  
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- XVI. **Modeling of the rectifier of a mini absorption cooling device using ceramic hollow fiber membranes**  
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- XVIII. **EXPERIMENTAL INVESTIGATION OF SINGLE-PHASE LIQUID FLOW AND HEAT TRANSFER IN MULTIPORT MINICHANNELS**  
Altinoz M., GÜVENÇ YAZICIOĞLU A., Baker D.  
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- XIX. **Adsorbent Refrigerant Comparison for a Solar Powered Adsorption Cooling System using Seasonal Simulations**  
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- XX. **Energy and exergy analysis for the electricity sector of Turkey**  
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- XXI. **Parametric Study and Seasonal Simulations of a Solar Powered Adsorption Cooling System**  
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- XXIII. **ThermoNet: Part of an integrated website-textbook system**  
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## **Metrikler**

Yayın: 69

Atıf (WoS): 626

Atıf (Scopus): 718

H-İndeks (WoS): 15

H-İndeks (Scopus): 15