

Prof. SÜLEYMAN KARACAN

Personal Information

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International Researcher IDs

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Education Information

Doctorate, Ankara University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği (Dr), Turkey 1992 - 1997

Postgraduate, Ankara University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği (YI) (Tezli), Turkey 1990 - 1992

Undergraduate, Ankara University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, Turkey 1984 - 1989

Foreign Languages

English, B2 Upper Intermediate

Dissertations

Doctorate, Dolgulu damıtma kolonuna optimum adaptif genelleştirilmiş prediktif kontrolünün uygulanması, Ankara University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği (Dr), 1997

Postgraduate, Geri akma oranına verilen kademe etkisiyle dolgulu damıtma kolonunun dinamik davranışının araştırılması, Ankara University, Fen Bilimleri Enstitüsü, Kimya Mühendisliği (YI) (Tezli), 1992

Research Areas

Engineering and Technology

Academic Titles / Tasks

Professor, Ankara University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2010 - Continues

Associate Professor, Ankara University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2004 - 2010

Assistant Professor, Ankara University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2001 - 2004

Courses

KYM415 PROSES TASARIMI I, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006

KYM331 PROSES BENZETİM PROGRAMLARI, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010

KYM351 KİMYA MÜH. LAB. I, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015
814524 PROSES ANALİZİ, Undergraduate, 2017 - 2018
KYM411 AYIRMA İŞLEMLERİ, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016
KYM459 ARAŞTIRMA TEKNİKLERİ I, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006, 2004 - 2005, 2003 - 2004, 2002 - 2003, 2001 - 2002
KYM509 PROSES KONTROL I, Postgraduate, 2016 - 2017, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011
KYM338 DİNAMİK BENZETİME GİRİŞ, Undergraduate, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006, 2004 - 2005, 2003 - 2004, 2002 - 2003, 2001 - 2002, 2000 - 2001
814618 UZMANLIK ALN DERSİ, Doctorate, 2016 - 2017
KYM460 ARAŞTIRMA TEKNİKLERİ II, Undergraduate, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006, 2004 - 2005, 2003 - 2004, 2002 - 2003, 2001 - 2002
814618 UZMANLIK ALN DERSİ, Postgraduate, 2016 - 2017
KYM454 KİMYA MÜH. LAB. III, Undergraduate, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006, 2004 - 2005, 2003 - 2004, 2002 - 2003, 2001 - 2002, 2000 - 2001
KYM529 PROSES KONTROL II, Postgraduate, 2016 - 2017, 2014 - 2015, 2009 - 2010, 2008 - 2009, 2006 - 2007, 2005 - 2006
KYM416 PROSES TASARIMI II, Undergraduate, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006
814 PROSES KONTROL I, Postgraduate, 2015 - 2016
KYM524 PROSES ANALİZ, Postgraduate, 2015 - 2016, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006, 2003 - 2004
KYM533 Çok Bileşenli Destilasyon, Postgraduate, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2008 - 2009, 2007 - 2008, 2005 - 2006
CHE236 Numerical Methods, Undergraduate, 2012 - 2013, 2004 - 2005, 2003 - 2004, 2002 - 2003
KYM509 Proses Kontrol I, Undergraduate, 2009 - 2010
KYM512 Doğrusal Kontrol Sistemleri, Postgraduate, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007
KYM515 Model Esaslı Kontrol, Postgraduate, 2008 - 2009, 2003 - 2004
TM226 Isı ve Kütle Aktarımı, Undergraduate, 2003 - 2004, 2002 - 2003, 2001 - 2002
KYM134 Bilgisayar Programlama, Undergraduate, 2002 - 2003, 2001 - 2002

Advising Theses

KARACAN S., The development of surface plasmon resonance (SPR) biosensors for dedection of histamine in foods, Doctorate, A.RAHTUVANOĞLU(Student), 2021
KARACAN S., Inferential control of the reactive distillation column, Postgraduate, E.ÖNDER(Student), 2020
KARACAN S., Atık yemeklik yağdan biyodizel üretiminde bir tepkimeli damıtma kolonunun yapay sinir ağları ile benzetimi, Postgraduate, B.GEDİKASLAN(Student), 2020
KARACAN S., eneralized predictive control of reactive distillation column for biodiesel production by using waste cooking oil, Doctorate, M.TUNCAY(Student), 2020
KARACAN S., Tepkimeli bir damıtma kolonunda metil asetat üretim prosesinin aspen hysys ile benzetimi, Postgraduate, M.ÇİLÇİLER(Student), 2020
KARACAN S., Dynamic simulation of a reactive distillation column for biodiesel production from vegetable waste oils with aspen HYSYS, Postgraduate, C.SOMUNCU(Student), 2020
KARACAN S., Atık yemeklik yağdan biyodizel üretiminde bir tepkimeli damıtma kolonunun yapay sinir ağları ile benzetimi / Simulation of a reactive distillation column with artificial neural networks in biodiesel production from waste cooking

oil, Postgraduate, B.Gedikaslan(Student), 2020

KARACAN S., Etil asetat üretiminin yapılacağı tepkimeli damıtma kolonunun çok değişkenli ayırmalı model öngörmeli denetimi, Doctorate, A.GIWA(Student), 2012

KARACAN S., Tepkimeli bir damıtma kolonunun doğrusal olmayan genelleştirilmiş öngörmeli kontrolü, Postgraduate, İ.BAYRAM(Student), 2010

KARACAN S., Metil asetat üretiminin yapıldığı kesikli tepkimeli bir dolgulu damıtma kolonunun kontrolü, Postgraduate, O.AKMAN(Student), 2009

KARACAN S., ÇOK BİLEŞENLİ BİR ALKOL KARIŞIMIN DAMITILDIĞI LABORATUVAR ÖLÇEKTE SÜREKLİ ÇALIŞAN BİR DOLGULU DAMITMA KOLONUNUN YAPAY SİNİR AĞLARI İLE ÇOK DEĞİŞKENLİ KONTROLÜ, S.KARACAN(Student), 2008

KARACAN S., Çok bileşenli bir alkol karışımının damıtıldığı laboratuvar ölçekte sürekli çalışan bir dolgulu damıtma kolonunun yapay sinir ağları ile çok değişkenli kontrolü, Postgraduate, F.VAROL(Student), 2008

KARACAN S., Çok bileşenli bir karışımın damıtıldığı laboratuvar-ölçekli dolgulu damıtma kolonunun kısıtlanmış model öngörmeli kontrolü, Postgraduate, S.AY(Student), 2006

KARACAN S., Dolgulu damıtma kolonunun ürün sıcaklıklarının 'generic' model kontrol ile denetimi, Postgraduate, Z.MOSLEMPOUR(Student), 2003

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Biomimetic Nanoparticles Based Surface Plasmon Resonance Biosensors for Histamine Detection in Foods**
Rahtuvanoglu A., AKGÖNÜLLÜ S., KARACAN S., DENİZLİ A.
CHEMISTRYSELECT, vol.5, no.19, pp.5683-5692, 2020 (SCI-Expanded)
- II. **Steady-state optimization for biodiesel production in a reactive distillation column**
KARACAN S., Karacan F.
CLEAN TECHNOLOGIES AND ENVIRONMENTAL POLICY, vol.17, no.5, pp.1207-1215, 2015 (SCI-Expanded)

Articles Published in Other Journals

- I. **Experimental performances of nonlinear GPC and discrete-time PID in multivariate process: NARIMAX and ARX models in temperature control of reactive distillation column in synthesis of biodiesel from waste cooking oil**
Cagatay M. T., KARACAN S.
PAMUKKALE UNIVERSITY JOURNAL OF ENGINEERING SCIENCES-PAMUKKALE UNIVERSITESI MUHENDISLIK BILIMLERI DERGISI, vol.28, no.7, pp.977-986, 2022 (ESCI)
- II. **Optimisation of Biodiesel Synthesis from Waste Cooking Oil in the Reactive Distillation Column Using Taguchi Methodology**
Cagatay M. T., Cagatay S., KARACAN S.
JOURNAL OF POLYTECHNIC-POLITEKNİK DERGISI, vol.24, no.1, pp.175-186, 2021 (ESCI)
- III. **Artificial neural networks modelling for biodiesel production from waste cooking oil**
KARACAN S., Çağatay M. T., GEDİKASLAN B.
International Journal of Energy Applications and Technologies, vol.7, no.3, pp.74-80, 2020 (Peer-Reviewed Journal)
- IV. **Simulation and optimization of reactive packed distillation column for biodiesel production using heterogeneous catalyst**
Çağatay M. T., KARACAN S.
International Journal of Energy Applications and Technologies, vol.5, no.4, pp.153-160, 2018 (Peer-Reviewed Journal)
- V. **Biodiesel production using reactive distillation column: Real time model predictive control in Matlab Simulink**

KARACAN S.

International Journal of Energy Applications and Technologies, vol.5, no.2, pp.107-114, 2018 (Peer-Reviewed Journal)

- VI. **Transesterification of Waste Cooking Oil into Biodiesel Using Aspen HYSYS**
KARACAN S., Çağatay T.
International Journal of Scientific Research in Science and Technology, vol.2, no.3, pp.83-87, 2017 (Peer-Reviewed Journal)
- VII. **Dynamics and Control Simulation of a Debutanizer Column using Aspen HYSYS**
KARACAN S., Karacan F.
International Journal of Science and Research (IJSR), vol.5, no.3, pp.1450-1454, 2016 (Peer-Reviewed Journal)
- VIII. **KOH ve ZnCl₂ Aktivasyonu ile Çanakkale-Çan Linyitinden Aktif Karbon Üretimi ve Karakterizasyonu**
KARACAN S., KARACAN F.
Pamukkale Üniversitesi Mühendislik Bilimleri Dergisi, vol.20, no.1, pp.1-8, 2014 (Peer-Reviewed Journal)
- IX. **Simulations and Economic Analyses of Ethyl Acetate Productions by Conventional and Reactive Distillation Processes Using Aspen Plus**
Abdulwahab G., KARACAN S., Ismail B., Saidat O G.
International Journal of Engineering Research Technology (IJERT), vol.2, no.8, pp.594-605, 2013 (Peer-Reviewed Journal)
- X. **Decoupling control of a reactive distillation process using Tyreus-Luyben technique**
Giwa A., KARACAN S.
ARPN Journal of Engineering and Applied Sciences, vol.7, no.10, pp.1263-1272, 2012 (Scopus)
- XI. **Decoupling control of a reactive distillation process using tyreus luyben technique**
KARACAN S., Abdulwahab G.
ARPN Journal of Engineering and Applied Sciences, vol.7, no.10, pp.1263-1273, 2012 (Scopus)
- XII. **Nonlinear Black Box Modeling of a Reactive Distillation Process**
Abdulwahab G., KARACAN S.
International Journal of Engineering Research & Technology, vol.1, no.7, pp.2278-2287, 2012 (Peer-Reviewed Journal)
- XIII. **Decoupling PID Control of a Reactive Packed Distillation Column**
KARACAN S., Abdulwahab G.
International Journal of Engineering Research & Technology, vol.1, no.6, pp.1-10, 2012 (Peer-Reviewed Journal)
- XIV. **Decoupling Model Predictive Control of a Reactive Packed Distillation Column**
KARACAN S., Abdulwahab G.
International Journal of Advances in Science and Technology, vol.4, no.6, pp.39-51, 2012 (Peer-Reviewed Journal)
- XV. **State Space Model Predictive Control of a Reactive Distillation Process.**
KARACAN S., GIWA A.
International Journal of Pure and Applied Sciences and Technology, vol.12, no.2, pp.1-14, 2012 (Peer-Reviewed Journal)
- XVI. **Simulation and Optimization of Ethyl Acetate Reactive Packed Distillation Process Using Aspen Hysys**
KARACAN S., Abdulwahab G.
The Online Journal of Science and Technology, vol.2, no.2, pp.57-63, 2012 (Peer-Reviewed Journal)
- XVII. **Black Box Modelling of Ethyl Acetate Reactive Packed Distillation Column AU Journal of Technology**
Abdulwahab G., KARACAN S.
AU Journal of Technology, vol.15, no.3, pp.172-178, 2012 (Peer-Reviewed Journal)
- XVIII. **Development of Dynamic Models for a Reactive Packed Distillation Column**
KARACAN S., Abdulwahab G.
International Journal of Engineering, vol.6, no.3, pp.118-128, 2012 (Peer-Reviewed Journal)
- XIX. **Modeling and Simulation of a Reactive Packed Distillation Column Using Delayed Neural Networks**
KARACAN S., Abdulwahab G.
Chaotic Modeling and Simulation, vol.1, no.1, pp.101-108, 2012 (Peer-Reviewed Journal)
- XX. **Decoupling constrained model predictive control of multi-component packed distillation column**

Books & Book Chapters

- I. **Chapter 12: Nonlinear Generalized Predictive Control based on Narimax Model of a ReactivePacked Distillation Column**
KARACAN S., BAYRAM İ., GIWA A.
in: Theoretical Inverstigations and Applied Studies in Engineering, Turgut Özseven, Editor, Ekin Publisihing, Bursa, pp.215-230, 2019
- II. **Nonlinear generalized predictive control based on narimax model of a reactive packed distillation column**
KARACAN S., Giwa A., BAYRAM İ.
in: Theoretical Investigations and Applied Studies in Engineering, Turgut Özseven, Editor, Ekin Publishing House, Bursa, pp.215-239, 2019

Refereed Congress / Symposium Publications in Proceedings

- I. **TEPKİMELİ BİR DAMITMA KOLONUNUN DOLAYLI KONTROLÜ**
ÖNDER YILDIRIM E., KARACAN S.
ULUSLARARASI KATILIMLI 23. ISI BİLİMİ VE TEKNİĞİ KONGRESİ (ULIBTK 2021) 8-10 EYLÜL 2021, Gaziantep, Turkey, 08 September 2021, vol.1, pp.12-18
- II. **BİTKİSEL ATIK YAĞLARDAN BİYODİZEL ÜRETİMİNİN YAPILDIĞI BİR TEPKİMELİ DAMITMA KOLONUNUN ASPEN HYSYS İLE DİNAMİK BENZETİMİ**
SOMUNCU C., KARACAN S.
ULUSLARARASI KATILIMLI 23. ISI BİLİMİ VE TEKNİĞİ KONGRESİ (ULIBTK 2021) 8-10 EYLÜL 2021, Gaziantep, Turkey, 08 September 2021, vol.1, pp.23-29
- III. **Optimisation of biodiesel synthesis from waste cooking oil in the reactive distillation column using taguchi methodology**
KARACAN S., Çağatay M. T.
22nd Congress on Thermal Science and Technology (ULIBTK 2019), Kocaeli, Turkey, 11 - 14 September 2019, vol.1, pp.198
- IV. **Modeling of a reactive distillation column with artificial neural networks in biodiesel production from waste cooking oil**
KARACAN S., Çağatay M. T., Gedikaslan B.
8th International Conference on Advanced Technologies (ICAT'2019), Sarajevo, Bosnia And Herzegovina, 26 - 30 August 2019, vol.1, pp.440-446
- V. **Multivariable Generalized Predictive Control for Biodiesel production process by reactive distillation column**
KARACAN S., Çağatay M. T.
8th International Conference on Advanced Technologies (ICAT'2019), Saraybosna, Bosnia And Herzegovina, 26 - 30 August 2019, vol.1, pp.447-459
- VI. **Modeling and simulation of a reactive packed distillation column using delayed neural networks**
Giwa A., KARACAN S.
4th International Conference on Chaotic Modeling and Simulation, CHAOS 2011, Agios Nikolaos, Crete, Greece, 31 May - 03 June 2011, pp.129-136
- VII. **Biodiesel production from waste cooking oil and aspen hysys optimization procedure**
KARACAN S., Çağatay M. T.
7th International Conference on Advanced Technologies, Antalya, Turkey, 28 April - 01 May 2018, vol.7, pp.7

- VIII. **Temperature control of a reactive distillation column for biodiesel production**
KARACAN S.
7th International Conference on Advanced Technologies, Antalya, Turkey, 28 April - 01 May 2018, vol.7, pp.10-15
- IX. **Experimental study using reactive distillation column for biodiesel production**
KARACAN S.
III. International Conference on Environmental Science and Technology (ICOEST 2017), Budapest, Hungary, 19 - 23 October 2017, pp.83
- X. **Investigation of the Mechanism of Residential Waste Vegetable Oil Collection**
KARACAN S., Karacan F.
III. International Conference on Environmental Science and Technology (ICOEST 2017), Budapest, Hungary, 19 - 23 October 2017, pp.84
- XI. **Nonlinear generalized predictive control based on narimax model of a reactive packed distillation column**
KARACAN S., Giwa A., Bayram İ.
22nd International Congress of Chemical and Process Engineering (CHISA 2016), Prag, Czech Republic, 27 - 31 August 2016
- XII. **Nonlinear generalized predictive control based on narimax model of a reactive packed distillation column**
KARACAN S., Bayram J., Giwa A.
22nd International Congress of Chemical and Process Engineering, CHISA 2016 and 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, PRES 2016, Prague, Czech Republic, 27 - 31 August 2016, vol.1, pp.471
- XIII. **Transesterification of waste cooking oil into biodiesel using Aspen HYSYS**
KARACAN S., Karacan F., Çağatay M.
22nd International Congress of Chemical and Process Engineering, CHISA 2016 and 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, PRES 2016, Prague, Czech Republic, 27 - 31 August 2016, vol.2, pp.1347
- XIV. **Simulation of production process on dimethyl ether from methanol**
KARACAN S.
22nd International Congress of Chemical and Process Engineering, CHISA 2016 and 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, PRES 2016, Prague, Czech Republic, 27 - 31 August 2016, vol.2, pp.1330
- XV. **Tepkimeli Damıtma Kolonunda Biyodizel Üretim Prosesinin Aspen HYSYS ortamında PID kontrolü**
KARACAN S.
11.ULUSAL KİMYA MÜHENDİSLİĞİ KONGRESİ(UKMK-11), Eskişehir, Turkey, 2 - 05 September 2014, vol.1, pp.322-323
- XVI. **Simulation of Reactive Distillation Column for Biodiesel Production at Optimum Conditions**
KARACAN S., Karacan F.
17th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction (PRES 2014), Prague, Czech Republic, 23 - 27 August 2014, vol.39, pp.1705-1706
- XVII. **Dynamics and control simulation of a debutanizer column using aspen HYSYS**
KARACAN S., Karacan F.
21st International Congress of Chemical and Process Engineering, CHISA 2014 and 17th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, PRES 2014, Prague, Czech Republic, 23 - 27 August 2014, vol.2, pp.968

Expert Reports

- I. **EFFECT OF CRUDE PECTINASE ON APPLE JUICE QUALITY CHARACTERISTICS BY DESIRABILITY APPROACH**

KARACAN S.
2018

Metrics

Publication: 42
Citation (WoS): 239
Citation (Scopus): 372
H-Index (WoS): 9
H-Index (Scopus): 11