Prof. Mustafa Bakkal

Personal Information

Email: bakkalmu@itu.edu.tr

International Researcher IDs
ORCID: 0000-0002-6150-9762
ScopusID: 6507186858
Yoksis Researcher ID: 117518

Education Information

Doctorate, North Carolina State University, Makina Mühendisliği, United States Of America 2001 - 2004
Postgraduate, California Institute of Technology, Uygulamalı Mekanik, United States Of America 2000 - 2001
Postgraduate, Istanbul Technical University, Makine Fakültesi, Makine Mühendisliği Bölümü, Turkey 1997 - 1999
Undergraduate, Istanbul Technical University, Makine Fakültesi, Makine Mühendisliği Bölümü, Turkey 1993 - 1997

Foreign Languages

English

Dissertations

Doctorate, Machining of Bulk Metallic Glasses, North Carolina State University, Makina Ve Uçak Mühendisliği, Makina Mühendisliği, 2004
Postgraduate, İyon Nitrürlemenin Ostemperlenmiş AISI 8660 Çeliğinin Mekanik Özelliklerine Etkisi, İstanbul Teknik Üniversitesi, Makina Mühendisliği, Makina Mühendisliği, 1999

Research Areas

Technical Sciences, Mechanical Engineering, Construction and Manufacturing, Machine Design, Material, Machining Methods, Metallurgical and Materials Engineering, Material science and engineering, Composites

Academic Titles / Tasks

Professor, Istanbul Technical University, Makina, Makina Mühendisliği, 2018 - Continues
Associate Professor, Istanbul Technical University, Makina, Makina Mühendisliği, 2011 - 2018
Assistant Professor, Istanbul Technical University, Makina, Makina Mühendisliği, 2005 - 2011
Research Assistant, Istanbul Technical University, Makina, Makina Mühendisliği, 1998 - 2005

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Tribo-corrosion behavior of electroplating, nitrocarburizing, and QPQ processes on barrel finishing**

Yücel A. H., Yilmaz A., Bakkal M., Kuzu A. T.
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II. **The development of a hybrid cutting model for workpiece temperature distribution via advection heat partition approach**
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III. **Fatigue behavior and self-heating mechanism of novel glass fiber reinforced thermoplastic composite**
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IV. **Investigation of Residual Stresses Induced by Milling of Compacted Graphite Iron by x-ray Diffraction Technique**
Kara M. E., Kuzu A. T., Bakkal M.
Journal of Materials Engineering and Performance, 2023 (SCI-Expanded)

V. **Backward tube spinning mechanics**
Sariyarlioglu E. C., Music Ö., Bakkal M.
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VI. **Effect of surface treatments on the interfacial strength for metal/composite hybrid joints**
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VII. **Temperature variation depending on cutting conditions and its effects on thrust force in micro-drilling of CFRP laminates**
Dogrusadik A., KENTLİ A., Bakkal M., Çakan M.
INTERNATIONAL JOURNAL OF MATERIALS & PRODUCT TECHNOLOGY, vol.65, no.2, pp.152-168, 2022 (SCI-Expanded)

VIII. **Experimental analysis on drilling of Al/Ti/CFRP hybrid composites**
Kayıhan M., Karaguzel U., Bakkal M.
MATERIALS AND MANUFACTURING PROCESSES, vol.36, no.2, pp.215-222, 2021 (SCI-Expanded)

IX. **Photostabilizers performance on the surface analysis of green composites**
Sonmez H. E., Bodur M. S., Baysan A. A., Bakkal M., Serhatlı İ. E.
POLYMERS & POLYMER COMPOSITES, vol.29, no.1, pp.57-64, 2021 (SCI-Expanded)

X. **Effect of scanning strategies and laser parameters on metal-composite joining**
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MATERIALS AND MANUFACTURING PROCESSES, vol.36, no.10, pp.1199-1207, 2021 (SCI-Expanded)

XI. **A study on the photostabilizer additives on the textile fiber reinforced polymer composites: Mechanical, thermal, and physical analysis**
BODUR M. S., BAKKAL M., SONMEZ H. E.
Polymer Engineering And Science, vol.58, pp.1082-1090, 2018 (SCI-Expanded)

XII. **Investigation of temperature distribution in orthogonal cutting through dual-zone contact model on the rake face**
CAKİR E., Ozlu E., Bakkal M., Budak E.
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XIII. **Dry and minimum quantity lubrication high-throughput drilling of compacted graphite iron**
Wu W., Kuzu A., STEPHENSON D., HONG J., Bakkal M., Shih A.
MACHINING SCIENCE AND TECHNOLOGY, vol.22, no.4, pp.652-670, 2018 (SCI-Expanded)

XIV. **Water absorption behavior and kinetics of glass fiber/waste cotton fabric hybrid composites**
Bodur M. S., Englund K., Bakkal M.

JOURNAL OF APPLIED POLYMER SCIENCE, vol.134, no.47, 2017 (SCI-Expanded)

XV. **The thermal modeling of deep-hole drilling process under MQL condition**
Kuzu A. T., Berenji K. R., Ekim B. C., Bakkal M.
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XVI. **Experimental study on the glass fiber/waste cotton fabric-reinforced hybrid composites: Mechanical and rheological investigations**
Bodur M. S., Bakkal M., Englund K.
JOURNAL OF COMPOSITE MATERIALS, vol.51, no.23, pp.3257-3268, 2017 (SCI-Expanded)

XVII. **Properties of Sound Panels Made from Recycled Footwear Treads**
YILDIZ F., Parlar A. G., Parlar Z., Bakkal M.
ACTA PHYSICA POLONICA A, vol.132, no.3, pp.936-940, 2017 (SCI-Expanded)

XVIII. **An Investigation for the Effect of Recycled Matrix on the Properties of Textile Waste Cotton Fiber Reinforced (T-FRP) Composites**
Bodur M. S., Sonmez H. E., Bakkal M.
POLYMER COMPOSITES, vol.38, no.7, pp.1231-1240, 2017 (SCI-Expanded)

XIX. **The effect of chemical treatment methods on the outdoor performance of waste textile fiber-reinforced polymer composites**
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XX. **Modelling thermally induced deformations on tool during turn-milling**
Karaguzel U., Bakkal M., BUDAK E.
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XXI. **The effects of different chemical treatment methods on the mechanical and thermal properties of textile fiber reinforced polymer composites**
Bodur M. S., Bakkal M., SONMEZ H. E.
JOURNAL OF COMPOSITE MATERIALS, vol.50, no.27, pp.3817-3830, 2016 (SCI-Expanded)

XXII. **The effect of cutting parameters and tool geometry on machinability of cotton-fiber reinforced polymer composites: Cutting forces, burr formation, and chip morphology**
Kuzu A. T., Bakkal M.
JOURNAL OF INDUSTRIAL TEXTILES, vol.45, no.6, pp.1364-1382, 2016 (SCI-Expanded)

XXIII. **Effects of tool axis offset in turn-milling process**
Karaguzel U., Uysal E., Budak E., Bakkal M.
JOURNAL OF MATERIALS PROCESSING TECHNOLOGY, vol.231, pp.239-247, 2016 (SCI-Expanded)

XXIV. **Thermal and force modeling of CGI drilling**
Kuzu A. T., BERENJI K. R., Bakkal M.
INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY, vol.82, pp.1649-1662, 2016 (SCI-Expanded)

XXV. **An experimental study on grinding of Zr-based bulk metallic glass**
Bakkal M., SERBEST E., KARIPCIN I., KUZU A. T., KARAGUZEL U., Derin B.
Advances in Manufacturing, vol.3, no.4, pp.282-291, 2015 (SCI-Expanded)

XXVI. **EXPERIMENTAL INVESTIGATIONS OF MACHINABILITY IN THE TURNING OF COMPACTED GRAPHITE IRON USING MINIMUM QUANTITY LUBRICATION**
Kuzu A. T., BIJANZAD A., Bakkal M.
MACHINING SCIENCE AND TECHNOLOGY, vol.19, no.4, pp.559-576, 2015 (SCI-Expanded)

XXVII. **Analytical modeling of turn-milling process geometry, kinematics and mechanics**
Karaguzel U., Uysal E., Budak E., Bakkal M.
INTERNATIONAL JOURNAL OF MACHINE TOOLS & MANUFACTURE, vol.91, pp.24-33, 2015 (SCI-Expanded)

XXVIII. **Increasing tool life in machining of difficult-to-cut materials using nonconventional turning processes**
Karaguzel U., Olgun U., Uysal E., Budak E., Bakkal M.

INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY, vol.77, pp.1993-2004, 2015 (SCI-Expanded)

XXIX. **A new approach for the development of textile waste cotton reinforced composites (T-FRP): laminated hybridization vs. coupling agents**
Bodur M. S., Bakkal M., SAVAS M., BERKALP Ö. B.
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XXX. **AUTONOMOUS HOLE QUALITY DETERMINATION USING IMAGE PROCESSING TECHNIQUES**
KUZU A. T., Kaveh R B., Seta b., GÖKAŞAN M., Bakkal M.
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XXXI. **Utilization of various non-woven waste forms as reinforcement in polymeric composites**
Yalcin I., SADIKOGLU T. G., BERKALP Ö. B., Bakkal M.
TEXTILE RESEARCH JOURNAL, vol.83, no.15, pp.1551-1562, 2013 (SCI-Expanded)

XXXII. **The effect of reprocessing on the mechanical properties of the waste fabric reinforced composites**
Bakkal M., BODUR M. S., Berkalp Ö. B., Yılmaz Ş.
JOURNAL OF MATERIALS PROCESSING TECHNOLOGY, vol.212, no.11, pp.2541-2548, 2012 (SCI-Expanded)

XXXIII. **FINITE ELEMENT MODELING OF RANDOM WASTE COTTON FIBER REINFORCED POLYETHYLENE COMPOSITES**
GERIKALMAZ S., Yılmaz Ş., Bakkal M., Berkalp Ö. B.
TEKSTIL VE KONFEKSIYON, vol.22, no.4, pp.293-300, 2012 (SCI-Expanded)

XXXIV. **The Effects of Tool Geometry on Machinability of Textile Fabric Reinforced Termoplastic Matrix Composites**
Bakkal M.
Advanced Materials Research, vol.0, no.445, pp.841-846, 2012 (SCI-Expanded)

XXXV. **Oxidation and crystallization of Zr-based bulk metallic glass due to machining**
Bakkal M., LIU C., WATKINS T., SCATTERGOOD R., SHIH A.
INTERMETALLICS, vol.12, no.2, pp.195-204, 2004 (SCI-Expanded)

Articles Published in Other Journals

I. **Sıcak Dövme Kalıplarına Infrared (Kızıl Ötesi) Yöntemi ile Ön Isıtma Uygulanmasına Yönelik Deneysel ve Teorik Analiz**
KARAGÜZEL U., KUZU A. T., Korap V., Çilingir H., BAKKAL M.
Makina Tasarım ve İmalat Dergisi, vol.18, no.1, pp.9-23, 2020 (Peer-Reviewed Journal)

II. **Young's modulus estimation techniques for the randomly oriented natural fiber reinforced composites: Finite element analysis and analytical models**
Bodur M. S., Bakkal M.
PAMUKKALE UNIVERSITY JOURNAL OF ENGINEERING SCIENCES-PAMUKKALE UNIVERSITESI MUHENDISLIK BILIMLERI DERGISI, vol.25, no.4, pp.454-461, 2019 (ESCI)

III. **Improving Performance of Turn milling by Controlling Forces and Thermally Induced Tool center Point TCP Displacement**
Putz M., Ihlenfeldt S., KARAGÜZEL U., Semmler U., BUDAK E., BAKKAL M., Wertheim R.
Procedia CIRP, vol.40, pp.481-485, 2016 (Peer-Reviewed Journal)

IV. **Effect of Recycled LDPE Matrix on the Properties of Waste Cotton Fiber Reinforced WCF R Composites**
BODUR M. S., HASRET ECE S., BERKALP Ö. B., BAKKAL M.
Usak University Journal of Material Sciences, vol.1, pp.135-141, 2014 (Peer-Reviewed Journal)

V. **Machinability of BMG**
Bakkal M.
INNOVATION IN MATERIALS SCIENCE II, vol.521, pp.225-253, 2012 (Scopus)

Supported Projects

Bakkal M., Kayıhan M., Project Supported by Higher Education Institutions, Sürekli elyaf takviyeli termoplastik kompozit malzemelerin yorulma ömrü tahmininin sıcaklık değişimi yardımıyla belirlenmesi, 2021 - Continues
Bakkal M., Kayıhan M., Project Supported by Higher Education Institutions, Yüksek performanslı hibrit kompozitlerde delik delme işleminin deneysel ve analitik olarak incelenmesi, 2018 - 2020
Bakkal M., Project Supported by Higher Education Institutions, Glass Fiber/Waste Cotton Fabric Reinforced Hybrid Composites: Mechanical Investigations, 2016 - 2018
Bakkal M., Project Supported by Higher Education Institutions, RESİDUAL STRESS ANALYSİS ON CGI DEEP HOLE DRİLLİNG PROCESS / CGI DERİN DELME İŞLEMİNDE OLUŞAN KALINTI GERİLME ANALİZİ, 2015 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Numerical Temperature Distribution Modeling On CGI Deep Hole Drilling With MQL, 2015 - 2018
Bakkal M., Project Supported by Higher Education Institutions, CGI Malzemesinin Delik Delme İşlemi Sırasında OLuşan Kuvvet ve MOmentlerin Modellenmesi, 2014 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Frezeyle Tornalama Operasyonunun Mekanik ve Isıl Modellenmesi, 2014 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Kompakt Grafitli Dökme Demirin Minimum Yağlama Sistemi ile Derin DElik Delme İşleminin Optimizasyonu ve Isıl Modellenmesi, 2014 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Metalik Camların Üretim Parametrelerinin Mekanik Özelliklerine Etkisi, 2013 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Development of Natural Fiber Reinforced Laminated Hybrid Composites, 2012 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Kompakt Grafitli Dökme Demirin (CGI) Delik İşleminde, Minimum Miktarda Yağlama (MQL) Sisteminin Etkisi, 2012 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Taşlama ve Frezleme Sonrası Camsı Metal Malzemede En Az Kalıntı Gerilem Oluşturan İşleme Parametrelerinin Belirlenmesi, 2011 - 2018
Bakkal M., Project Supported by Higher Education Institutions, CAMSI METALLERİN TAŞLANMASINDA İLERLEME HIZININ ETKİLERİ, 2010 - 2018
Bakkal M., Project Supported by Higher Education Institutions, POLİMER ESASLI TEKSTİL KARMA MALZEMELERİN DENEYSEL VE SONLU ELEMANLARIN ANALİZİ, 2009 - 2018
Bakkal M., Project Supported by Higher Education Institutions, Z-Esaslı Kalın Camsı Metallerin Frezelenebilirliği, 2008 - 2018
Bakkal M., Project Supported by Higher Education Institutions, MQL Kullanımın CGI Tornalarında Takım Aşınmasına Etkisi, 2013 - 2014
Bakkal M., Project Supported by Higher Education Institutions, Zirkonyum Esaslı Metalik Cam Geliştirilmesi, 2013 - 2014
Bakkal M., Project Supported by Higher Education Institutions, Sialon Takım İle Tornalanan Inconel 718'in İşlenebilirliğinin Belirlenmesi, 2011 - 2014
Bakkal M., Project Supported by Higher Education Institutions, Hibrid Kompozitleirn Yüksek Hızlı Deformasyondaki Mekanik ÖzelliklerininBelirlenmesi, 2012 - 2013
Bakkal M., Project Supported by Higher Education Institutions, Frezleme İşleminin Camsı Metallerdeki Kalıntı Gerilme Oluşumuna Etkisi, 2010 - 2013
Bakkal M., Project Supported by Higher Education Institutions, Cam Elyaf Takviyeli Kompozitlerin İşlenebilirliğinin İncelenmesş, 2010 - 2013
Bakkal M., Project Supported by Higher Education Institutions, Taşlama İşleminin Camsı Metallerdeki Kalıntı Gerilme Oluşumuna Etkisi, 2010 - 2013
Bakkal M., Project Supported by Higher Education Institutions, KIRMA İŞLEMİNİN (GERİ DÖNÜŞÜM) ATIK KUMAŞ TAKVİYELİ POLİMER MATRİSLİ KARMA MALZEMELERİNİN MEKANİK ÖZELLİKLERİ ÜZERİNE ETKİSİ, 2009 - 2013
Bakkal M., Project Supported by Higher Education Institutions, İyon Nitrürlemenin Temperleme Etkisinin Temperlenmiş Mertenzitik ve Beynitik Yapıların Mekanik Özelliklerine Etkisi, 2009 - 2013
Bakkal M., Project Supported by Higher Education Institutions, FREZE İLE KUMAŞ TAKVİYELİ POLİMER MATRSLİ KOMPOZİTLERİN İŞLENEBİLİRLİĞİNİN İNCELENEMSİ, 2010 - 2012

Bakkal M., Project Supported by Higher Education Institutions, Form Delme İşleminin Yaygın Saç Metal Uygulamalarına Yönelik Olarak Deneysel Bir Yolla İncelenmesi, 2008 - 2009
Bakkal M., Project Supported by Higher Education Institutions, Takım Malzemelerinin Ti6A14V Alaşımının İşlenebilirliğine Etkisi, 2008 - 2009
Bakkal M., Project Supported by Higher Education Institutions, Zr-Co ve Fe Esaslı Kalın Camsı Metallerin Üretilmesi ve Karakterizasyonu, 2007 - 2009
Bakkal M., Project Supported by Higher Education Institutions, Zirkonyum (Zr) Esaslı Camsı Metallerin Frezede İşlenmesi Sırasında Oluşan Kesme Kuvvetleri, Takım Aşınması ve İş Parçası Yüzey Pürüzlülüğünün İncelenmesi, 2006 - 2009
Bakkal M., Project Supported by Higher Education Institutions, Ti6A14V Titanyum Alaşımının İşlenebilirliğinin Isıl İşlemle Artırılması, 2007 - 2008

Metrics

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Citation (Scopus): 956
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H-Index (Scopus): 19

Non Academic Experience

Oak Ridge National Laboratory
YONCA TEK