

## **Prof. ALİ İHSAN AROL**

### **Personal Information**

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### **International Researcher IDs**

ScholarID: GIUird0AAAAJ

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Publons / Web Of Science ResearcherID: AAI-2070-2020

ScopusID: 6602899551

Yoksis Researcher ID: 4292

### **Education Information**

Doctorate, University of Minnesota, School of Engineering, Department of Civil and Mineral Engineering, United States Of America 1982 - 1984

Postgraduate, University of Minnesota, School of Engineering, Department of Civil and Mineral Engineering, United States Of America 1978 - 1982

Undergraduate, Istanbul Technical University, Maden, Maden Mühendisliği, Turkey 1972 - 1977

### **Foreign Languages**

English, C1 Advanced

### **Dissertations**

Doctorate, The Effect of Clay Minerals on the Selective Flocculation of Iron Ores, University Of Minnesota, Mineral Engineering, 1984

Postgraduate, Determination of applicability of a newly designed hydrocyclone for on-stream particle size analysis, University Of Minnesota, Mineral Engineering, 1982

### **Research Areas**

Mining Engineering and Technology

### **Academic Titles / Tasks**

Professor, Middle East Technical University, Faculty of Engineering, Department of Mining Engineering, 2004 - Continues  
Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Mining Engineering, 1989 - 2004

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Mining Engineering, 1986 -

## Academic and Administrative Experience

Middle East Technical University, Faculty of Engineering, Department of Mining Engineering, 2009 - 2015

Middle East Technical University, Faculty of Engineering, Department of Mining Engineering, 2003 - 2009

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Mining Engineering, 1991 - 1996

## Courses

Tailings and Effluent Management, Undergraduate, 2018 - 2019

Chemistry of Mineral Water Systems, Postgraduate, 2019 - 2020

Mineral Processing II, Undergraduate, 2018 - 2019

Chemical Mining, Postgraduate, 2016 - 2017

## Advising Theses

AROL A. İ., Production of precipitated calcium carbonate from marble waste by calcination-hydration-carbonation, Postgraduate, H.MELİS(Student), 2022

AROL A. İ., Determination of agglomeration characteristics of Oltu-stone (jet stone) wastes, Doctorate, M.RAHEEL(Student), 2022

AROL A. İ., Operational factors affecting maturity of units in the Beypazarı trona mine, Postgraduate, T.Beşir(Student), 2019

AROL A. İ., Investigation of factors affecting coke strength after reaction (CSR) and developing a statistical model for CSR prediction, Postgraduate, B.ÜNSAL(Student), 2018

AROL A. İ., Production of precipitated calcium carbonate from marble wastes, Postgraduate, N.SEZER(Student), 2013

AROL A. İ., Effect of carbonate alkalinity on the flocculation behavior of hematite, Postgraduate, A.MOLAEİ(Student), 2012

AROL A. İ., Use of boron based binders in pelletization of iron ores, Doctorate, O.SİVRİKAYA(Student), 2011

AROL A. İ., Use of waste pyrite from mineral processing plants in soil remediation, Doctorate, G.AYDIN(Student), 2011

AROL A. İ., Computer modeling of the initial cavern for Beypazarı trona ore on the basis of leaching rates, insoluble contents and thickness of trona layer, Postgraduate, İ.TUNÇAY(Student), 2008

AROL A. İ., Use of borates as an activating agent for drilling mud bentonites, Doctorate, B.TOKA(Student), 2008

AROL A. İ., Behaviour of Bentonite suspensions in non-aqueous media, Postgraduate, T.USKARCI(Student), 2006

AROL A. İ., Hydrometallurgical extraction of nickel and cobalt from Çaldağ lateritic ore, Postgraduate, V.ÖZDEMİR(Student), 2006

AROL A. İ., Heat treatment of iron ore agglomerates with microwave energy, Postgraduate, Ç.ÇIRPAR(Student), 2005

AROL A. İ., Effect of alkalinity on flotation behaviour of quartz, Postgraduate, A.Halime(Student), 2003

AROL A. İ., Effect of alkalinity on flotation behavior of quartz, Postgraduate, H.ASLI(Student), 2003

AROL A. İ., Effect of ultrasonic treatment on selective flocculation of chromite, Postgraduate, U.BARIŞ(Student), 2002

AROL A. İ., Investigation of separation of dark-colored minerals from feldspar by selective flocculation, Postgraduate, İ.DOĞU(Student), 2002

AROL A. İ., Usability of borax tailings in building bricks as an additive, Postgraduate, T.USLU(Student), 1996

AROL A. İ., Grindability of mixtures of pure minerals, Postgraduate, C.Turgut(Student), 1996

AROL A. İ., Grindability of mixtures of pure minerals, Postgraduate, C.TURGUT(Student), 1996

AROL A. İ., Use of activated carbons produced from indigenous raw materials in gold metallurgy as an alternative to coconut shell carbons, Doctorate, M.Yalçın(Student), 1996

AROL A. İ., Effect of activation degree on the pore size distribution and mechanical strength of activated carbons apricot stone origin, Postgraduate, M.Fatih(Student), 1996  
AROL A. İ., Enhancement possibilities of recovery of very fine magnetite particles in magnetic separation, Postgraduate, A.Aydoğan(Student), 1994  
AROL A. İ., Selective flocculation of chromite, Postgraduate, F.BOLANDAKHTARI(Student), 1993  
AROL A. İ., Concentration of very fine particles by centrifuge, Postgraduate, M.JAZDAREHEE(Student), 1993  
AROL A. İ., Grinding characteristics of Küre copper ore, Postgraduate, B.FİDAN(Student), 1990  
AROL A. İ., Grinding characteristics of Küre copper ore, Postgraduate, B.Fidan(Student), 1990  
AROL A. İ., Removal of antimony and arsenic from sulphide concentrates by sodium sulphide leaching, Postgraduate, M.YALÇIN(Student), 1989

## Designed Lessons

Arol A. İ., Tailings and Effluent Management, Undergraduate, 1994 - 1995  
Arol A. İ., Chemistry of Mineral Water Systems, Postgraduate, 1993 - 1994

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Solvent extraction of La, Nd, and Eu using a newly designed solutions spray system**  
Zubair Rahim M., Ihsan Arol A. İ.  
MINERALS ENGINEERING, vol.216, 2024 (SCI-Expanded)
- II. **Conversion of cleaned Oltu-stone wastes (a semi-precious stone) into a valuable product using binderless agglomeration**  
Bawani M. R., AROL A. İ., TOZSİN G., TORUN A.  
Physicochemical Problems of Mineral Processing, vol.59, no.5, 2023 (SCI-Expanded)
- III. **Effects of abandoned coal mine on the water quality**  
TOZSİN G., AROL A. İ., Duzgun S., Soydan H., TORUN A.  
INTERNATIONAL JOURNAL OF COAL PREPARATION AND UTILIZATION, vol.42, no.11, pp.3202-3212, 2022 (SCI-Expanded)
- IV. **Forming superhydrophobic surfaces for mineral separation at water pulsating jigs**  
CAMALAN M., AROL A. İ.  
Colloids and Surfaces A: Physicochemical and Engineering Aspects, vol.651, 2022 (SCI-Expanded)
- V. **Preliminary assessment of spray coating, solution-immersion and dip coating to render minerals superhydrophobic**  
Camalan M., Ihsan Arol A. İ.  
Minerals Engineering, vol.176, 2022 (SCI-Expanded)
- VI. **Changes in the chemical composition of an acidic soil treated with marble quarry and marble cutting wastes**  
TOZSİN G., ÖZTAŞ T., AROL A. İ., KALKAN E.  
CHEMOSPHERE, vol.138, pp.664-667, 2015 (SCI-Expanded)
- VII. **Pyritic Tailings as a Source of Plant Micronutrients in Calcareous Soils**  
TOZSİN G., AROL A. İ.  
COMMUNICATIONS IN SOIL SCIENCE AND PLANT ANALYSIS, vol.46, no.12, pp.1473-1481, 2015 (SCI-Expanded)
- VIII. **Use of waste pyrite as an alternative to gypsum for alkaline soil amelioration**  
TOZSİN G., AROL A. İ., ÇAYCI G.  
INTERNATIONAL JOURNAL OF MINING RECLAMATION AND ENVIRONMENT, vol.29, no.3, pp.169-177, 2015 (SCI-Expanded)
- IX. **The effects of marble wastes on soil properties and hazelnut yield**  
TOZSİN G., ÖZTAŞ T., AROL A. İ., KALKAN E., Duyar O.

JOURNAL OF CLEANER PRODUCTION, vol.81, pp.146-149, 2014 (SCI-Expanded)

- X. **Using marble wastes as a soil amendment for acidic soil neutralization**  
TOZSİN G., AROL A. İ., ÖZTAŞ T., Kalkan E.  
JOURNAL OF ENVIRONMENTAL MANAGEMENT, vol.133, pp.374-377, 2014 (SCI-Expanded)
- XI. **EVALUATION OF PYRITIC TAILINGS FROM A COPPER CONCENTRATION PLANT FOR CALCAREOUS SODIC SOIL RECLAMATION**  
TOZSİN G., AROL A. İ., ÇAYCI G.  
PHYSICOCHEMICAL PROBLEMS OF MINERAL PROCESSING, vol.50, no.2, pp.693-704, 2014 (SCI-Expanded)
- XII. **An investigation of the relationship between compressive strength and dust generation potential of magnetite pellets**  
SİVRİKAYA O., AROL A. İ.  
INTERNATIONAL JOURNAL OF MINERAL PROCESSING, vol.123, pp.158-164, 2013 (SCI-Expanded)
- XIII. **The Effect of Calcined Colemanite Addition on the Mechanical Strength of Magnetite Pellets Produced with Organic Binders**  
SİVRİKAYA O., AROL A. İ., Eisele T., Kawatra S. K.  
MINERAL PROCESSING AND EXTRACTIVE METALLURGY REVIEW, vol.34, no.4, pp.210-222, 2013 (SCI-Expanded)
- XIV. **Method to improve preheated and fired strengths of haematite pellets using boron compounds with organic binders**  
SİVRİKAYA O., AROL A. İ.  
IRONMAKING & STEELMAKING, vol.40, no.1, pp.1-8, 2013 (SCI-Expanded)
- XV. **The bonding/strengthening mechanism of colemanite added organic binders in iron ore pelletization**  
SİVRİKAYA O., AROL A. İ.  
INTERNATIONAL JOURNAL OF MINERAL PROCESSING, vol.110, pp.90-100, 2012 (SCI-Expanded)
- XVI. **EVALUATION OF LOW GRADE IRON ORE DEPOSIT IN ERZINCAN-TURKEY FOR IRON ORE PELLET CONCENTRATE PRODUCTION**  
SİVRİKAYA O., AROL A. İ.  
PHYSICOCHEMICAL PROBLEMS OF MINERAL PROCESSING, vol.48, no.2, pp.475-484, 2012 (SCI-Expanded)
- XVII. **Pelletization of magnetite ore with colemanite added organic binders**  
Sivrikaya O., AROL A. İ.  
POWDER TECHNOLOGY, vol.210, no.1, pp.23-28, 2011 (SCI-Expanded)
- XVIII. **Effect of carbonate alkalinity on flotation behavior of quartz**  
Sayilgan A., Arol A.  
INTERNATIONAL JOURNAL OF MINERAL PROCESSING, vol.74, pp.233-238, 2004 (SCI-Expanded)
- XIX. **Behaviour of oversize particles in iron ore balling**  
Basdag A., Arol A.  
CIM BULLETIN, vol.97, no.1079, pp.69-71, 2004 (SCI-Expanded)
- XX. **Separation of dark-colored minerals from feldspar by selective flocculation using starch**  
Dogu I., Arol A.  
POWDER TECHNOLOGY, vol.139, no.3, pp.258-263, 2004 (SCI-Expanded)
- XXI. **Recovery enhancement of magnetite fines in magnetic separation**  
Arol A., Aydogan A.  
COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS, vol.232, pp.151-154, 2004 (SCI-Expanded)
- XXII. **Use of boron waste as an additive in red bricks**  
Uslu T., Arol A.  
WASTE MANAGEMENT, vol.24, no.2, pp.217-220, 2004 (SCI-Expanded)
- XXIII. **Effect of microwave heating on magnetic separation of pyrite**  
Uslu T., Atalay U., Arol A.  
COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS, vol.225, pp.161-167, 2003 (SCI-Expanded)
- XXIV. **Effect of sodium silicate on flocculation of hematite with starch in the presence of calcium**

Arol A., Iwasaki I.

SEPARATION SCIENCE AND TECHNOLOGY, vol.38, no.3, pp.647-659, 2003 (SCI-Expanded)

**XXV. Coating of iron oxide pellets for direct reduction**

Basdag A., Arol A.

SCANDINAVIAN JOURNAL OF METALLURGY, vol.31, no.3, pp.229-233, 2002 (SCI-Expanded)

**XXVI. Gold cyanide adsorption characteristics of activated carbon of non-coconut shell origin**

Yalcin M., Arol A.

HYDROMETALLURGY, vol.63, no.2, pp.201-206, 2002 (SCI-Expanded)

## Articles Published in Other Journals

**I. Use of boron compounds as binders in iron ore pelletization**

SİVRİKAYA O., AROL A. İ.

Open Mineral Processing Journal, vol.3, no.1, pp.25-35, 2010 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

**I. Washability and Thermal Properties of Oltutaşı Wastes**

Bawani M. R., AROL A. İ., TOZSİN G., Akbulak B., Torun A.

IMPC Eurasia Conference, 31 October - 02 November 2019

**II. SCALE-DOWN TUMBLER TESTS FOR DETERMINATION OF ABRASION RESISTANCE OF IRON ORE PELLETS**

SİVRİKAYA O., AROL A. İ.

XVII Balkan Mineral Processing Congress, 23 - 26 May 2019, vol.1

**III. KÜÇÜLTÜLMÜŞ TAMBUR TESTİ İLE DEMİR CEVHERİ PELETLERİ AŞINMA DAYANIMI BELİRLENMESİ**

SİVRİKAYA O., AROL A. İ.

26th International Mining Congress and Exhibition (IMCET 2019), Ankara, Turkey, 16 - 19 April 2019, vol.1, pp.884-896

**IV. Use of Solid Bowl Decanter as Mineral Concentration Device**

Bawani M. R., AROL A. İ.

16th International Mineral Processing Symposium, 23 - 25 October 2018, vol.1

**V. Thermal Investigation of Some Potential Binders for Iron Ore Pelletizing**

SİVRİKAYA O., AROL A. İ.

16th International Mineral Processing Symposium (IMPS 2018), Antalya, Turkey, 23 - 25 October 2018, vol.1, pp.550-557

**VI. INVESTIGATION OF BENEFICIATION OF A MANGANESE ORE BY JIG**

SİVRİKAYA O., AROL A. İ.

Balkan Mineral Processing Congress, 1 - 03 November 2017

**VII. Use of marble wastes in soil remediation**

TOZSİN G., AROL A. İ.

25th International Mining Congress and Exhibition of Turkey, 11 - 14 April 2017

**VIII. Utilization of mineral wastes as alternative raw materials**

AROL A. İ.

Internatioanal Conference on Advance Materials and Processing, 28 February - 02 March 2017

**IX. The Effect of Borates on the Aging of Drilling Mud Bentonites**

AROL A. İ., TOKA B.

4th International Mine & Mining Industries Congress & 6th Iranian Mining Engineering Conference, 6 - 08 November 2016

**X. The Rheological and Filtrate Properties of Bentonites Activated with Borate and Treated with**

## **Polymers**

Toka B., AROL A. İ.

XVI Balkan Mineral Processing Congress, 17 - 19 June 2015

XI. **Effect of Marble Waste on the ACid Generation Inhibition and Heavy Metal Mobility in Copper Sulphide Tailings**

TOZSİN G., AROL A. İ.

XVI Balkan Mineral Processing Congress, 17 - 19 June 2015

XII. **IMPROVEMENT OF THE PROPERTIES OF IRON ORE PELLETS WITH BORON COMPOUNDS ADDITION**

SİVRİKAYA O., AROL A. İ.

89th Annual Meeting SME Minnesota Section 77th Annual University of Minnesota Mining Symposium, 14 - 15 April 2015

XIII. **Maghemite - a source of heavy medium for coal washeries**

AROL A. İ., Ozbayoglu G., Anaç S., Bulut M.

25th International Mineral Processing Congress 2010, IMPC 2010, Brisbane, Australia, 6 - 10 September 2010, vol.1, pp.571-574

## **Expert Reports**

I. **Bilirkiş Raporu**

Arol A. İ., Karpuz C., Bilgin H. A.

Mahkeme, pp.4, Bolu, 2018

## **Supported Projects**

AROL A. İ., BAWANI M. R., Project Supported by Higher Education Institutions, Determination of Agglomeration characteristics of oltutaşı wastes, 2021 - 2022

AROL A. İ., Project Supported by Higher Education Institutions, Konvansiyonel Titreşimli Dikdörtgen Eleklerden Üstün Performanslı Laboratuvar Ölçekli Bir Enine Daralan Eleğin Tasarlanması Ve Performansının Karşılaştırılması Olarak Değerlendirilmesi, 2012 - 2013

## **Memberships / Tasks in Scientific Organizations**

Society of Mining Engineers, Member, 1980 - Continues

TMMOB Maden Mühendisleri Odası, Member, 1977 - Continues

## **Scientific Refereeing**

Bilimsel Madencilik Dergisi, National Scientific Refreed Journal, May 2018

PHYSICOCHEMICAL PROBLEMS OF MINERAL PROCESSING, SCI Journal, April 2018

WASTE MANAGEMENT & RESEARCH, SCI Journal, March 2018

Journal Of Cleaner Production, SCI Journal, March 2018

PHYSICOCHEMICAL PROBLEMS OF MINERAL PROCESSING, SCI Journal, February 2018

PARTICULATE SCIENCE AND TECHNOLOGY, SCI Journal, January 2018

## **Tasks In Event Organizations**

Arol A. İ., Atalay M. Ü., 16 International Mineral Processing Symposium, Scientific Congress, Antalya, Turkey, Ekim 2018

## **Metrics**

Publication: 44

Citation (WoS): 438

Citation (Scopus): 426

H-Index (WoS): 12

H-Index (Scopus): 12

## **Congress and Symposium Activities**

International Mineral Processing Conference Eurasia (IMPC 2019), Working Group, Antalya, Turkey, 2019

1st International Conference on Advanced Materials and Processing, Invited Speaker, Karachi, Pakistan, 2017

## **Awards**

Arol A. İ., Mehmet Kemal Dedeman Araştırma ve Geliştirme Proje Yarışması, Mehmet Kemal Dedeman , May 2009

## **Non Academic Experience**

Gulf Industrial Investment Company (GIIC), Bahreyn

Türkiye Demir Çelik İşletmeleri Genel Müdürlüğü

University of Minnesota

Hasan Çelebi Grup Başkanlığı