

Samira Mohagheghi

E-mail	samira.mohagheghi@istinye.edu.tr
Research interest	Solidification and casting, crystal growth, microstructure evolution, multiphase eutectic alloys, additive manufacturing, microstructure-property relationship

Research/Work Experience:

<i>Name of Institution/Company</i>	<i>Position held</i>	<i>Dates</i>
Istinye University/Turkey	Assistant Professor	2020-current
Koç University/Turkey Sorbonne Université, Institut des NanoSciences de Paris/France	Postdoctoral researcher	2018-2020
Koç University/Turkey	Ph.D. candidate	2013-2018
Tabriz University /Iran	Visiting scholar	2010-2012
Iran Tractor Foundry Company/Iran	Internship	2004-2004
Azar Felez heat treatment company/Iran	Quality control supervisor	2005-2009

Academic Profile and Fellowship Period

<i>University</i>	<i>Department</i>	<i>Years</i>
Koç University/Turkey	Materials Science and Engineering Program	2013-2018
Azad University/Iran	Materials Engineering, Materials Selection and Characterization	2009-2012
Sahand University of Technology/Iran	Materials Engineering, Industrial Metallurgy	2001-2006

Foreign Language/Level

English/ excellent
Turkish/ excellent
Farsi/ native
Azeri/ mother tongue

Ph.D. thesis title	Dynamics of eutectic growth in a three-phase system
M.Sc. thesis title	Adhesion optimization of polymeric coatings on Aluminum substrate
B.Sc. thesis title	Formation of acicular ferrite in low-carbon steel

Institutional skills and competences	Teaching and Research
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Teaching	<ul style="list-style-type: none"> ✓ Materials Science ✓ Manufacturing processes ✓ Composite materials ✓ Machine design
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Teaching assistantships	✓ Manufacturing technologies in automotive engineering
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	<ul style="list-style-type: none"> ✓ Manufacturing processes ✓ Microstructure and mechanical behavior of materials ✓ Physics laboratory
Technical skills and competences	<p>1. <i>Material characterization methods:</i> Scanning Electron Microscope (SEM), Electron Backscatter Diffraction (EBSD), X-ray Diffraction (XRD), Texture and residual stress analysis, Inductively Coupled Plasma Spectroscopy (ICP)</p> <p>2. <i>Mechanical properties of materials</i> Micro-hardness, Nano indentation test</p> <p>3. <i>Solidification and casting</i> Experienced in casting techniques and different types of furnace (resistance furnace, induction furnace, arc melting technique), Experienced in designing and working with different directional solidification setups and experimental design techniques.</p> <p>4. <i>Material preparation</i> Metallography techniques and serial sectioning</p>
Computer skills and competences	MATLAB, Solidworks, CATIA, MAGMA, Microsoft Office, Image processing software (ImageJ, Micromanager, ...), EndNote.
Awards and honors	<ul style="list-style-type: none"> ✓ TÜBİTAK 2224-A Grant for participation in scientific meetings abroad. ✓ Postdoctoral fellowship from TÜBİTAK. ✓ Research assistant position from Koç University. ✓ Multiple travel funds from graduate school of Koç University to attend conferences. ✓ TÜBİTAK additional scholarship to support research assistants. ✓ Koç University scholarship for Ph.D. study ✓ Ranked as first top student during M.Sc. study. ✓ Tuition fee waiver scholarship for B.Sc. study.
Journal Publications	<ol style="list-style-type: none"> 1. S. Mohagheghi, S. Bottin-Rousseau, M. Şerefoğlu “In-situ investigation of the solidification dynamics in an irregular eutectic alloy” (2023), IOP Conf. Ser.: Mater. Sci. Eng. 1274 012033. 2. H. Jahangiri, S. Mohagheghi, A. A. Alamdari, R. Yilmaz, K. G. Bayrak, F. Yu, H. Ghadbeigi, E. Ayas, A. Motallebzadeh “Microstructure development and mechanical performance of Al₂CrFeMnTi light-weight high entropy alloy” (2021), Intermetallics, 139, 107376. 3. S. Mohagheghi, S. Bottin-Rousseau, S. Akamatsu, M. Şerefoğlu, “Decoupled versus coupled growth dynamics of an irregular eutectic alloy” (2020), Scripta Materialia, 189, pp 11-15. 4. S. Mohagheghi and M. Şerefoğlu, “On the growth dynamics of nearly-locked grain in the three-phase In-Bi-Sn eutectic system” (2019), Metallurgical and Materials Transactions A, 50, pp 5221–5233. 5. S. Mohagheghi, U. Hecht, S. Bottin-Rousseau, S. Akamatsu, G. Faivre, M. Şerefoğlu, “Effects of interphase boundary anisotropy on the

	<p>three-phase growth dynamics in the $\beta(\text{In}) - \text{In}_2\text{Bi} - \gamma(\text{Sn})$ ternary-eutectic system” (2019), IOP Conf. Ser.: Mater. Sci. Eng. 529 012010.</p> <p>6. S. Mohagheghi and M. Şerefoğlu, “Quasi-isotropic and locked grain growth dynamics in a three-phase eutectic system” (2018), Acta Materialia, 151, pp 432-442.</p> <p>7. S. Mohagheghi and M. Şerefoğlu, “Dynamics of spacing adjustment and recovery mechanisms of ABAC-type growth pattern in ternary eutectic systems” (2017), Journal of Crystal Growth, 470, pp 66-74.</p> <p>8. S. Mohagheghi, A. Hatefi, A. Kianvash, “Effect of H_3PO_4 anodising variations on Al-epoxy adhesion strength” (2013), Journal of Surface Engineering, 29, pp 737-742.</p> <p>9. A. Hatefi, S. Mohagheghi, A. Kianvash, “The effect of silane layer drying temperature on epoxy coating adhesion on silane-pretreated aluminum substrate” (2013), Journal of Coatings Technology and Research, 10, pp 743–747.</p>
<p style="text-align: center;"><i>Conferences</i></p>	<ul style="list-style-type: none"> ✓ S. Mohagheghi, M. Şerefoğlu, “Microstructure evolution of the three phase Al-Al₂Cu-Ag₂Al eutectic system upon directional solidification”, IMMC (2022), Turkey. ✓ S. Mohagheghi, M. Şerefoğlu “The role of the interphase boundary anisotropy on the microstructure selection in a three-phase eutectic system” ICASP 6, (2022), France. ✓ S. Mohagheghi, S. Bottin-Rousseau, M. Şerefoğlu “In-situ investigation of the solidification dynamics in an irregular eutectic alloy” ICASP 6, (2022), France. ✓ S. Mohagheghi, S. Bottin-Rousseau, S. Akamatsu, M. Şerefoğlu and J. Lacaze “Shape transitions in faceted/non-faceted eutectics” The 12th International Symposium on the Science and Processing of Cast Iron, (2021), Japan. ✓ S. Mohagheghi, M. Şerefoğlu “Microstructural and morphological characterization of directionally solidified copper-boron eutectic system” IMMC, (2021) Turkey. ✓ S. Mohagheghi, S. Bottin-Rousseau, S. Akamatsu, M. Şerefoğlu “Irregular Eutectic Solidification: Coupled or Decoupled Growth” IMMC, (2021) Turkey. ✓ H. Jahangiri, S. Mohagheghi, A. A. Alamdari, K. Gürcan, R. Yılmaz, E. Ayas, A. Motallebzadeh, “Microstructural and mechanical characterization of AlCrFeMnTi light-weight high entropy alloy developed by mechanical alloying”, EUROMAT, (2021) Austria. ✓ S. Bottin-Rousseau, S. Mohagheghi, S. Akamatsu, M. Şerefoğlu “Coupled and decoupled eutectic growth in a transparent irregular eutectic alloy”, Invited talk in TMS, (2021), USA. ✓ S. Mohagheghi, M. Şerefoğlu, “Interphase boundary anisotropy effects on the microstructure evolution in three phase $\beta(\text{In}) - \text{In}_2\text{Bi} - \gamma(\text{Sn})$ eutectic system” TMS, (2020) USA. ✓ S. Mohagheghi, S. Bottin-Rousseau, S. Akamatsu, G. Faivre, M. Şerefoğlu, “In-situ observations of faceted/nonfaceted irregular-eutectic growth during thin-sample directional solidification of the AMPD-SCN transparent alloy”, EUROMAT, (2019) Sweden.

	<ul style="list-style-type: none"> ✓ S. Mohagheghi, M. Şerefoğlu, “Growth dynamics of nearly-locked grain in three-phase $\beta(\text{In}) - \text{In}_2\text{Bi} - \gamma(\text{Sn})$ ternary eutectic system”, EUROMAT, (2019) Sweden. ✓ S. Mohagheghi and M. Şerefoğlu, “Effect of interphase boundary anisotropy on three-phase eutectic microstructures” TMS, (2018) USA. ✓ S. Mohagheghi and M. Şerefoğlu, “Real-time study on microstructure evolution of a three-phase eutectic system in quasi-2D samples” TMS, (2017) USA. ✓ S. Mohagheghi and M. Şerefoğlu, “Pattern formation dynamics in a three-phase eutectic system” 6th Decennial International Conference on Solidification Processing, (2017) UK. ✓ S. Mohagheghi and M. Şerefoğlu, “Microstructure selection in In-Bi-Sn ternary eutectic system during directional solidification” EUROMAT, (2017) Greece. ✓ S. Mohagheghi and M. Şerefoğlu, “Dynamics of pattern formation in In-Bi-Sn eutectic system in quasi-2D sample” Conference on Patterns of Dynamics, (2016) Germany. ✓ S. Mohagheghi and M. Şerefoğlu, “In-situ observation of patterns formation in In-Bi-Sn eutectic system in quasi-2D sample” Conference on Multiscale Modeling of Materials, (2016) France. ✓ S. Mohagheghi, A. Kianvash, A. Hatefi, “Studies of anodizing electrolyte temperature effects on Al-epoxy bonding strength” New and Advanced Material International Conference (2012) Iran. ✓ S. Mohagheghi, A. Kianvash, A. Hatefi, “The effect of anodizing voltage on hydrophilic behavior of Al-7075 and adhesion strength of an epoxy coating” 13th National Surface Pretreatment Seminar (2012) Iran.
Research project advising	<ul style="list-style-type: none"> ✓ TÜBİTAK 2209-A - Research project support programme for undergraduate students, Investigation of the mechanical properties of copper-boron in situ composite manufactured by spark plasma sintering method. ✓ TÜBİTAK 2209-A - Research project support programme for undergraduate students, Effects of manufacturing techniques on the microstructures, electrical and mechanical properties of copper-boron eutectic alloy.
Research Project	
<p>Istinye University/Marmara University/Access e.V., Germany (ongoing)</p> <p>Istinye University/Marmara University (ongoing)</p> <p>Istinye University/ Koç University (ongoing)</p> <p>Koç University (completed)</p> <p>Koç University (completed)</p>	<ul style="list-style-type: none"> ✓ Crystal/crystal orientation relationships in three-phase eutectics ✓ Pattern formation in three-phase eutectic system under microgravity conditions ✓ High entropy alloys ✓ Dynamics of eutectic growth in three-phase alloy system ✓ Dynamics of irregular eutectics growth ✓ Pattern formation in three-phase ternary eutectic system ✓ Eutectic growth in faceted/non-faceted Cu-B system

Tabriz University (completed)	<ul style="list-style-type: none"> ✓ Surface modification of Aluminum alloys ✓ Anodizing of Aluminum alloys
Sahand University of Technology (completed)	<ul style="list-style-type: none"> ✓ Formation of acicular ferrite in low-carbon steel
<i>Workshops and Meetings</i>	<ul style="list-style-type: none"> ✓ Annual meeting on Solidification along a Eutectic path in Ternary Alloys (SETA), European Space Agency (ESA) Basic Research Project, Istanbul ✓ Magma casting simulation workshop, Istanbul. ✓ Annual meeting on Solidification along a Eutectic path in Ternary Alloys (SETA), European Space Agency (ESA) Basic Research Project, Leuven. ✓ Bruker workshop on texture and residual stress analysis, Istanbul.
Other Professional Certifications:	<ul style="list-style-type: none"> ✓ ISO 9001-2000 ✓ Statistical sampling methods ✓ Image analyzing techniques