

Prof. AHMET ORAL

Personal Information

Office Phone: [+90 312 210 5001](tel:+903122105001)

Email: orahmet@metu.edu.tr

Web: <https://avesis.metu.edu.tr/orahmet>

International Researcher IDs

ScholarID: VwBgK1MAAAAJ

ORCID: 0000-0001-8972-4862

Publons / Web Of Science ResearcherID: ABB-7017-2021

ScopusID: 7006521439

Yoksis Researcher ID: 179794

Education Information

Doctorate, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, Turkey 1990 - 1994

Postgraduate, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, Turkey 1987 - 1990

Undergraduate, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, Turkey 1982 - 1987

Dissertations

Doctorate, Investigation of Si_{1-x}Gex alloy formation by using STM, Bilkent Üniversitesi, Fen Fakültesi, Fizik Bölümü, 1994

Postgraduate, Construction of a scanning tunneling microscope and first results, Bilkent Üniversitesi, Fen Fakültesi, Fizik Bölümü, 1990

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2014 - Continues

Professor, Sabanci University, Faculty Of Engineering And Natural Sciences, Department Of Natural Sciences And Engineering Program, 2008 - 2013

Professor, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, 2006 - 2008

Associate Professor, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, 2002 - 2006

Assistant Professor, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, 1999 - 2002

Lecturer PhD, University of Oxford, Department Of Materials, 1998 - 1999

Lecturer PhD, University of Oxford, Department Of Materials, 1997 - 1998

Lecturer PhD, University of Bath, Science, School Of Physics, 1994 - 1997

Research Assistant, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, 1987 - 1994

Advising Theses

ORAL A., Transparent graphene anodes for organic light emitting diodes, Doctorate, P.SHARIF(Student), 2021

ORAL A., Graphene based flexible hall sensors, Doctorate, U.YİĞİT(Student), 2021

ORAL A., Ultra-high-resolution low-temperature magnetic force microscopy, Postgraduate, A.Badami(Student), 2019

ORAL A., TOPOLOJİK YALITKANLARIN VE TOPOLOJİK SÜPERİLETKENLERİN MANYETİK ÖZELLİKLERİNİN TARAMALI UÇ MİKROSKOPLARI (TUM) TEKNİKLERİ İLE ARAŞTIRILMASI, Doctorate, K.ÇELİK(Student), 2017

ORAL A., Non-contact atomic force microscope in ultra high vacuum using radiation pressure excitation of cantilever with Fabry-Perot interferometer, Postgraduate, E.KARAGÖZ(Student), 2017

ORAL A., Non-contact atomic force microscope operation in ultra high vacuum using radiation pressure excitation of cantilever, Postgraduate, Y.UYSALLI(Student), 2016

ORAL A., Determination of photon momentum transfer between different mediums using interferometry of an angled silica fiber filament, Postgraduate, E.ÖZGÖNÜL(Student), 2016

ORAL A., Design of a self-aligned, high resolution, low temperature (30 mK - 300 K) magnetic force microscope, Doctorate, Ö.KARCI(Student), 2015

ORAL A., Development, fabrication and characterization of graphene and bismuth hall sensors for scanning hall probe microscopy, Doctorate, S.SONUŞEN(Student), 2015

ORAL A., Design of an advanced atomic force microscope control electronics using FPGA, Postgraduate, İ.KEHRİBAR(Student), 2013

ORAL A., Mechanically exfoliated single and multilayer graphene sheets and graphene field effect transistor, Postgraduate, S.MANUKYAN(Student), 2009

ORAL A., Development of nano Hall sensors for high resolution scanning Hall probe microscopy, Doctorate, M.DEDE(Student), 2008

ORAL A., Investigation of lateral forces in dynamic mode AFM/STM, Doctorate, M.ATABAK(Student), 2007

ORAL A., Scanning hall probe microscopy (SHPM) using quartz crystal AFM feedback, Postgraduate, K.ÜRKMEN(Student), 2005

ORAL A., Fabrication and characterization of GaAs and InAs hall sensors, Postgraduate, S.ÖZDEMİR(Student), 2004

ORAL A., Fabrication and characterization of bismuth hall sensors at room temperature, Postgraduate, G.BAYER(Student), 2003

ORAL A., Construction of an atomic force microscope operating in air and liquid, Postgraduate, M.KARAKÖSE(Student), 2003

ORAL A., Investigation of the magnetic properties of BSCCO superconductors with scanning hall probe microscope, Postgraduate, M.DEDE(Student), 2002

ORAL A., Simultaneous STM/ AC-AFM investigation of clean Si(001)-(2x1) surface and Ge epitaxial growth on Si(001)-(2x1), Postgraduate, M.ATABAK(Student), 2001

ORAL A., Atomic resolution imaging and force spectroscopy of silicon surfaces with atomic force microscopy, Doctorate, H.ÖZGÜR(Student), 2001

ORAL A., Microfabrication of micro hall sensors on GaAs and InSb for scanning hall probe microscopy, Postgraduate, M.MURAT(Student), 2001

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Efficient photocatalytic activity of Mo-doped ZnO-In₂O₃ type-II staggered heterostructure for dye degradation**
Anwar S., Naeem M., Karamat S., Bhopal M., Bhatti A., ORAL A.
International Journal of Environmental Science and Technology, vol.21, no.7, pp.6093-6106, 2024 (SCI-Expanded)
- II. **Chemical Interactions of Nano Islandic Graphene Grown on Titanium Dioxide Substrates by Chemical Vapor Deposition**
Karamat S., Khaliq U., Usman A., Javaid A., ORAL A.
ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING, vol.47, no.6, pp.7779-7788, 2022 (SCI-Expanded)
- III. **An Effective Route for the Growth of Multilayer MoS₂ by Combining Chemical Vapor Deposition and Wet Chemistry**
Almohaimed Z. M., Karamat S., Akram R., Sarwar S., Javaid A., ORAL A.
ADVANCES IN CONDENSED MATTER PHYSICS, vol.2022, 2022 (SCI-Expanded)

- IV. **Synthesis of Graphene-MoS₂ composite based anode from oxides and their electrochemical behavior**
Sarwar S, Karamat S, Saleem Bhatti A, Kadri Aydinol M. K, ORAL A., Hassan M. U.
Chemical Physics Letters, vol.781, 2021 (SCI-Expanded)
- V. **Solubility Enhancement of Fe in ZnO Nanoparticles Prepared by Co-Precipitation Method**
Musharaf M, Karamat S, Hassan M. U., Khalique U., ORAL A., Behjat A. B, Akram R, Almohaimeed Z.
Journal of Superconductivity and Novel Magnetism, vol.34, no.10, pp.2633-2642, 2021 (SCI-Expanded)
- VI. **Interpretation of SARS-CoV-2 behaviour on different substrates and denaturation of virions using ethanol: an atomic force microscopy study**
ÇELİK Ü., ÇELİK K., Celik S., ABAYLI H., ŞAHNA K., TONBAK Ş., AŞÇI TORAMAN Z., ORAL A.
RSC ADVANCES, vol.10, no.72, pp.44079-44086, 2020 (SCI-Expanded)
- VII. **Chemical vapor deposition of molybdenum disulphide on platinum foil**
Karamat S, Hassan M. U., Pan J. S., Tabassam L., ORAL A.
MATERIALS CHEMISTRY AND PHYSICS, vol.249, 2020 (SCI-Expanded)
- VIII. **1 fm/root Hz noise level low temperature Fabry-Perot atomic force/magnetic force microscope operating in 4-300 K temperature range**
Karc O., Celik U., Oral A.
REVIEW OF SCIENTIFIC INSTRUMENTS, vol.91, no.1, 2020 (SCI-Expanded)
- IX. **Multilayer graphene growth on polar dielectric substrates using chemical vapour deposition**
KARAMAT S., Celik K., Zaman S. S., ORAL A.
APPLIED SURFACE SCIENCE, vol.442, pp.720-725, 2018 (SCI-Expanded)
- X. **Non-destructive patterning of 10nm magnetic island array by phase transformation with low-energy proton irradiation**
Dutta T, PATHAK S., ASBAHÍ M., Celik K., Lee J. M., Yang P., Saifullah M. S. M., ORAL A., Bhatia C. S., CHA J., et al.
APPLIED PHYSICS LETTERS, vol.111, no.15, 2017 (SCI-Expanded)
- XI. **Growth of nano-graphene on SrTiO₃ (110) substrates by chemical vapour deposition**
KARAMAT S., Celik K., ORAL A.
MATERIALS CHEMISTRY AND PHYSICS, vol.200, pp.187-195, 2017 (SCI-Expanded)
- XII. **Radiation pressure excitation of a low temperature atomic force/magnetic force microscope for imaging in 4-300 K temperature range**
Celik U. L., KARCI O., UYSALLI Y., Özer H. T., ORAL A.
REVIEW OF SCIENTIFIC INSTRUMENTS, vol.88, no.1, 2017 (SCI-Expanded)
- XIII. **3D scanning Hall probe microscopy with 700 nm resolution**
DEDE M., AKRAM R., ORAL A.
APPLIED PHYSICS LETTERS, vol.109, no.18, 2016 (SCI-Expanded)
- XIV. **Graphene/SrTiO₃ hetero interface studied by X-ray photoelectron spectroscopy**
KARAMAT S., KE C., Inkaya U. Y., AKRAM R., YILDIZ İ., Zaman S. S., ORAL A.
PROGRESS IN NATURAL SCIENCE-MATERIALS INTERNATIONAL, vol.26, no.4, pp.422-426, 2016 (SCI-Expanded)
- XV. **Suitable alkaline for graphene peeling grown on metallic catalysts using chemical vapor deposition**
KARAMAT S., Sonusen S., ÇELİK Ü., UYSALLI Y., ORAL A.
APPLIED SURFACE SCIENCE, vol.368, pp.157-164, 2016 (SCI-Expanded)
- XVI. **Coalescence of few layer graphene grains grown by chemical vapor deposition and their stacking sequence**
Karamat S., Sonusen S., Dede M., Uysalli Y., Ozgonul E., ORAL A.
JOURNAL OF MATERIALS RESEARCH, vol.31, no.1, pp.46-54, 2016 (SCI-Expanded)
- XVII. **Synthesis of few layer single crystal graphene grains on platinum by chemical vapour deposition**
Karamat S., Sonusen S., ÇELİK Ü., UYSALLI Y., Ozgonul E., ORAL A.
PROGRESS IN NATURAL SCIENCE-MATERIALS INTERNATIONAL, vol.25, no.4, pp.291-299, 2015 (SCI-Expanded)
- XVIII. **An ultra-low temperature scanning Hall probe microscope for magnetic imaging below 40 mK**
Karci O., Piatek J. O., Jorba P., DEDE M., Ronnow H. M., ORAL A.
REVIEW OF SCIENTIFIC INSTRUMENTS, vol.85, no.10, 2014 (SCI-Expanded)
- XIX. **Design of a self-aligned, wide temperature range (300 mK-300 K) atomic force microscope/magnetic**

force microscope with 10 nm magnetic force microscope resolution

Karci O., DEDE M., ORAL A.

REVIEW OF SCIENTIFIC INSTRUMENTS, vol.85, no.10, 2014 (SCI-Expanded)

- XX. **Single layer graphene Hall sensors for scanning Hall probe microscopy (SHPM) in 3-300 K temperature range**
Sonusen S., KARCI Ö., DEDE M., Aksoy S., Oral A.
APPLIED SURFACE SCIENCE, vol.308, pp.414-418, 2014 (SCI-Expanded)
- XXI. **The effects of postdeposition annealing conditions on structure and created defects in Zn_{0.90}Co_{0.100} thin films deposited on Si(100) substrate**
Can M. M., Firat T., Shah S. I., Bakan F., Oral A.
JOURNAL OF MATERIALS RESEARCH, vol.28, no.5, pp.708-715, 2013 (SCI-Expanded)
- XXII. **Bean-Livingston surface barriers for flux penetration in Bi₂Sr₂CaCu₂O_{8+delta} single crystals near the transition temperature**
Mihalache V., Dede M., Oral A., Miu L.
PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS, vol.471, no.19-20, pp.563-565, 2011 (SCI-Expanded)
- XXIII. **Vortex phases in magnetic fields near ab-plane in Bi₂Sr₂CaCu₂O_{8+delta} single crystal**
Mirkovic J., Saito T., Kashiwagi T., Takeya I., Kubo Y., Yamamoto T., Oral A., Kadowaki K.
PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS, vol.470, 2010 (SCI-Expanded)
- XXIV. **Sub-Angstrom oscillation amplitude non-contact atomic force microscopy for lateral force gradient measurement**
Atabak M., Unverdi O., Özer H. Ö., Oral A.
APPLIED SURFACE SCIENCE, vol.256, no.5, pp.1299-1303, 2009 (SCI-Expanded)
- XXV. **Vortex states in mesoscopic single crystals Bi₂Sr₂CaCu₂O_{8+delta} in high magnetic fields**
Mirkovic J., Kubo Y., Saitou T., Takeya I., Yamamoto T., Oral A., Kadowaki K.
PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS, vol.469, no.15-20, pp.1119-1121, 2009 (SCI-Expanded)
- XXVI. **High sensitivity and multifunctional micro-Hall sensors fabricated using InAlSb/InAsSb/InAlSb heterostructures**
BANDO M., OHASHI T., Dede M., Akram R., Oral A., Park S. Y., SHIBASAKI I., HANDA H., SANDHU A.
JOURNAL OF APPLIED PHYSICS, vol.105, no.7, 2009 (SCI-Expanded)
- XXVII. **Noncontact lateral-force gradient measurement on Si(111)-7 x 7 surface with small-amplitude off-resonance atomic force microscopy**
Atabak M., Unverdi O., Özer H. T., Oral A.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B, vol.27, no.2, pp.1001-1005, 2009 (SCI-Expanded)
- XXVIII. **Imaging capability of pseudomorphic high electron mobility transistors, AlGa_N/Ga_N, and Si micro-Hall probes for scanning Hall probe microscopy between 25 and 125 degrees C**
AKRAM R., Dede M., Oral A.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B, vol.27, no.2, pp.1006-1010, 2009 (SCI-Expanded)
- XXIX. **Variable Temperature-Scanning Hall Probe Microscopy With GaN/AlGa_N Two-Dimensional Electron Gas (2DEG) Micro Hall Sensors in 4.2-425 K Range Using Novel Quartz Tuning Fork AFM Feedback**
Akram R., Dede A., Oral A.
IEEE TRANSACTIONS ON MAGNETICS, vol.44, no.11, pp.3255-3260, 2008 (SCI-Expanded)
- XXX. **Vortex imaging with varying temperature revealed by SHPM on Bi(2)Sr(2)CaCu(2)O_{8+y}**
Mihalache V., Dede M., Oral A., Sandu V.
PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS, vol.468, no.7-10, pp.832-836, 2008 (SCI-Expanded)
- XXXI. **Scanning Hall Probe Microscopy (SHPM) using quartz crystal AFM feedback**
Dede M., Uerkmen K., Girisen O., Atabak M., Oral A., Farrer I., Ritchie D.
JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY, vol.8, no.2, pp.619-622, 2008 (SCI-Expanded)
- XXXII. **Solid or liquid? Solidification of a nanoconfined liquid under nonequilibrium conditions**
Patil S., MATEI G., Oral A., Hoffmann P. M.
LANGMUIR, vol.22, no.15, pp.6485-6488, 2006 (SCI-Expanded)
- XXXIII. **Real-time imaging of vortex-antivortex annihilation in Bi₂Sr₂CaCu₂O_{8+delta} single crystals by low**

temperature scanning hall probe microscopy

Dede M., Oral A., Yamamoto T., Kadowaki K., Shtrikman H.

JAPANESE JOURNAL OF APPLIED PHYSICS PART 1-REGULAR PAPERS BRIEF COMMUNICATIONS & REVIEW PAPERS, vol.45, no.3B, pp.2246-2250, 2006 (SCI-Expanded)

- XXXIV. **A highly sensitive atomic force microscope for linear measurements of molecular forces in liquids**
PATÍL S., MATEÍ G., DONG H., HOFFMANN P., Karakose M., Oral A.
REVIEW OF SCIENTIFIC INSTRUMENTS, vol.76, no.10, 2005 (SCI-Expanded)
- XXXV. **Direct measurement of molecular stiffness and damping in confined water layers**
JEFFERY S., HOFFMANN P. M., PETHÍCA J. B., RAMANUJAN C., ÖZER H. Ö., Oral A.
PHYSICAL REVIEW B, vol.70, no.5, 2004 (SCI-Expanded)
- XXXVI. **Nano and micro Hall-effect sensors for room-temperature scanning hall probe microscopy**
SANDHU A., OKAMOTO A., SHÍBASAKÍ I., Oral A.
MICROELECTRONIC ENGINEERING, pp.524-528, 2004 (SCI-Expanded)
- XXXVII. **50 nm Hall sensors for room temperature scanning Hall probe microscopy**
SANDHU A., KUROSAWA K., DEDE M., Oral A.
JAPANESE JOURNAL OF APPLIED PHYSICS PART 1-REGULAR PAPERS BRIEF COMMUNICATIONS & REVIEW PAPERS, vol.43, no.2, pp.777-778, 2004 (SCI-Expanded)
- XXXVIII. **Low-amplitude, force gradient imaging of Cu(100) surface using tunnel current feedback**
ÖZER H. Ö., NORRÍS A., Oral A., HOFFMANN P. M., PETHÍCA J. B.
NANOTECHNOLOGY, vol.15, no.2, 2004 (SCI-Expanded)
- XXXIX. **Room temperature scanning micro-Hall probe microscopy under extremely large pulsed magnetic fields**
Sandhu A., Masuda H., Oral A.
IEEE TRANSACTIONS ON MAGNETICS, vol.39, no.5, pp.3462-3464, 2003 (SCI-Expanded)
- XL. **High-sensitivity noncontact atomic force microscope/scanning tunneling microscope (nc AFM/STM) operating at subangstrom oscillation amplitudes for atomic resolution imaging and force spectroscopy**
Oral A., GRIMBLE R., ÖZER H. Ö., PETHICA J.
REVIEW OF SCIENTIFIC INSTRUMENTS, vol.74, no.8, pp.3656-3663, 2003 (SCI-Expanded)
- XLI. **Integrated piezoresistive sensors for atomic force-guided scanning Hall probe microscopy**
BROOK A. J., BENDİNG S., PINTO J., Oral A., RÍTCHÍE D., BEERE H., HENÍNÍ M., SPRİNGTHORPE A.
APPLIED PHYSICS LETTERS, vol.82, no.20, pp.3538-3540, 2003 (SCI-Expanded)
- XLII. **Measurement of energy dissipation between tungsten tip and Si(1 0 0)-(2 × 1) using sub-Ångström oscillation amplitude non-contact atomic force microscope**
Özer H. Ö., Atabak M., Oral A.
Applied Surface Science, vol.210, pp.12-17, 2003 (SCI-Expanded)
- XLIII. **Micromachined III-V cantilevers for AFM-tracking scanning hall probe microscopy**
BROOK A. J., BENDİNG S., PINTO J., Oral A., RÍTCHÍE D., BEERE H., SPRİNGTHORPE A., HENÍNÍ M.
JOURNAL OF MICROMECHANICS AND MICROENGINEERING, vol.13, no.1, pp.124-128, 2003 (SCI-Expanded)
- XLIV. **Room temperature scanning micro-Hall probe microscope imaging of ferromagnetic microstructures in the presence of 2.5 Tesla pulsed magnetic fields generated by an integrated mini coil**
Sandhu A., Masuda H., Oral A.
JAPANESE JOURNAL OF APPLIED PHYSICS PART 2-LETTERS, vol.41, no.12A, 2002 (SCI-Expanded)
- XLV. **Ultra-small oscillation amplitude nc-AFM/STM imaging, force and dissipation spectroscopy of Si(100)(2 × 1)**
Özer H. Ö., Atabak M., ORAL A.
Solid State Communications, vol.124, no.12, pp.469-472, 2002 (SCI-Expanded)
- XLVI. **Room-temperature scanning Hall probe microscope (RT-SHPM) imaging of garnet films using new high-performance InSb sensors**
Oral A., Kaval M., DEDE M., MASUDA H., OKAMOTO A., SHÍBASAKÍ I., SANDHU A.
IEEE TRANSACTIONS ON MAGNETICS, vol.38, no.5, pp.2438-2440, 2002 (SCI-Expanded)

- XLVII. **Room temperature scanning Hall probe microscopy using GaAs/AlGaAs and Bi micro-hall probes**
SANDHU A., MASUDA H., Oral A., Bending S., YAMADA A., KONAGAI M.
Ultramicroscopy, vol.91, pp.97-101, 2002 (SCI-Expanded)
- XLVIII. **Room temperature scanning Hall probe microscopy of localized magnetic field fluctuations on the surfaces of magnetic recording media, permanent magnets and crystalline garnet films in external bias fields**
Sandhu A., Iida N., Masuda H., Oral A., Bending S.
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.242, pp.1249-1252, 2002 (SCI-Expanded)
- XLIX. **Simultaneous non-contact atomic force microscopy (nc-AFM)/STM imaging and force spectroscopy of Si(1 0 0)(2 × 1) with small oscillation amplitudes**
Özer H., Atabak M., Ellialtıglu R. M., Oral A.
Applied Surface Science, vol.188, pp.301-305, 2002 (SCI-Expanded)
- L. **Energy dissipation in atomic force microscopy and atomic loss processes**
HOFFMANN P. M., JEFFERY S., PETHICA J. B., ÖZER H. Ö., Oral A.
PHYSICAL REVIEW LETTERS, vol.87, no.26, 2001 (SCI-Expanded)
- LI. **Bismuth nano-Hall probes fabricated by focused ion beam milling for direct magnetic imaging by room temperature scanning Hall probe microscopy**
SANDHU A., MASUDA H., KUROSAWA K., Oral A., BENDING S.
ELECTRONICS LETTERS, vol.37, no.22, pp.1335-1336, 2001 (SCI-Expanded)
- LII. **Quantitative atom-resolved force gradient imaging using noncontact atomic force microscopy**
Oral A., GRIMBLE R., ÖZER H. Ö., HOFFMANN P., PETHICA J.
APPLIED PHYSICS LETTERS, vol.79, no.12, pp.1915-1917, 2001 (SCI-Expanded)
- LIII. **Room temperature sub-micron magnetic imaging by scanning Hall probe microscopy**
SANDHU A., MASUDA H., Oral A., BENDING S. J.
JAPANESE JOURNAL OF APPLIED PHYSICS PART 1-REGULAR PAPERS SHORT NOTES & REVIEW PAPERS, vol.40, pp.4321-4324, 2001 (SCI-Expanded)
- LIV. **Direct magnetic imaging of ferromagnetic domain structures by room temperature scanning hall probe microscopy using a bismuth micro-hall probe**
SANDHU A., MASUDA H., Oral A., BENDING S. J.
JAPANESE JOURNAL OF APPLIED PHYSICS PART 2-LETTERS, vol.40, 2001 (SCI-Expanded)
- LV. **Direct measurement of interatomic force gradients using an ultra-low-amplitude atomic force microscope**
HOFFMANN P. M., Oral A., GRIMBLE R. A., ÖZER H. Ö., JEFFERY S., PETHICA J. B.
PROCEEDINGS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES, vol.457, no.2009, pp.1161-1174, 2001 (SCI-Expanded)
- LVI. **Collective modes in flux line liquids**
Tanatar B., Oral A.
SUPERCONDUCTOR SCIENCE & TECHNOLOGY, vol.13, no.7, pp.968-970, 2000 (SCI-Expanded)
- LVII. **Manipulation of atoms across a surface at room temperature**
FISHLOCK T. W., Oral A., EGDELL R. G., PETHICA J. B.
NATURE, vol.404, no.6779, pp.743-745, 2000 (SCI-Expanded)
- LVIII. **Quantitative electrostatic force measurement in AFM**
JEFFERY S., Oral A., Pethica J. B.
Applied Surface Science, vol.157, no.4, pp.280-284, 2000 (SCI-Expanded)
- LIX. **Interaction of bromine with Ni(110) studied by scanning tunnelling microscopy**
Fishlock T., Pethica J., Oral A., Egdell R., Jones F.
Surface Science, vol.426, no.2, pp.212-224, 1999 (SCI-Expanded)
- LX. **Scanning Hall probe microscopy of ferromagnetic structures**
Howells G., Oral A., Bending S., Andrews S., Squire P., Rice P., de Lozanne A., Bland J., Kaya I., Henini M.
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.196, pp.917-919, 1999 (SCI-Expanded)
- LXI. **Direct observation of melting of the vortex solid in Bi2Sr2CaCu2O8+delta single crystals**

- Oral A., BARNARD J. C., BENDİNG S. J., KAYA I. I., OOI S., TAMEGAI T., HENİNİ M.
PHYSICAL REVIEW LETTERS, vol.80, no.16, pp.3610-3613, 1998 (SCI-Expanded)
- LXII. **Disorder-driven intermediate state in the lattice melting transition of Bi₂Sr₂CaCu₂O_{8+delta} single crystals**
Oral A., Barnard J., Ooi S., Taoka H., Tamegai T., Henini M.
PHYSICAL REVIEW B, vol.56, no.22, pp.14295-14298, 1997 (SCI-Expanded)
- LXIII. **Hall effect in a highly inhomogeneous magnetic field distribution**
BENDİNG S. J., Oral A.
JOURNAL OF APPLIED PHYSICS, vol.81, no.8, pp.3721-3725, 1997 (SCI-Expanded)
- LXIV. **Microscopic measurement of penetration depth in YBa₂Cu₃O_{7-delta} thin films by scanning Hall probe microscopy**
Oral A., BENDİNG S., HUMPHREYS R., HENİNİ M.
SUPERCONDUCTOR SCIENCE & TECHNOLOGY, vol.10, no.1, pp.17-20, 1997 (SCI-Expanded)
- LXV. **Vortex imaging in superconducting films by Scanning Hall Probe Microscopy**
Oral A., BENDİNG S. J., HUMPHREYS R. G., HENİNİ M.
JOURNAL OF LOW TEMPERATURE PHYSICS, vol.105, pp.1135-1140, 1996 (SCI-Expanded)
- LXVI. **Real-time scanning hall probe microscopy**
Oral A., BENDİNG S. J., HENİNİ M.
APPLIED PHYSICS LETTERS, vol.69, no.9, pp.1324-1326, 1996 (SCI-Expanded)
- LXVII. **Scanning Hall probe microscopy of superconductors and magnetic materials**
Oral A., Bending S., Henini M.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B, vol.14, no.2, pp.1202-1205, 1996 (SCI-Expanded)
- LXVIII. **Initial stages of SiGe epitaxy on Si(001) studied by scanning tunneling microscopy**
Oral A., Ellialtioglu R.
Surface Science, vol.323, no.3, pp.295-303, 1995 (SCI-Expanded)
- LXIX. **A NOVEL FORCE MICROSCOPE AND POINT-CONTACT PROBE**
JARVIS S. P., ORAL A., WEIHS T. P., PETHICA J. B.
REVIEW OF SCIENTIFIC INSTRUMENTS, vol.64, no.12, pp.3515-3520, 1993 (SCI-Expanded)
- LXX. **STM OF GLOW-DISCHARGE TREATED SURFACES**
ORAL A., SERBETCI A., ELLIATIOGLU R., PISKIN E.
BIOMATERIALS ARTIFICIAL CELLS AND IMMOBILIZATION BIOTECHNOLOGY, vol.21, no.4, pp.469-473, 1993 (SCI-Expanded)

Articles Published in Other Journals

- I. **Direct and real-time observation of sub-micron domain dynamics in magnetically biased strontium ferrite permanent magnets by room temperature scanning micro-Hall probe microscopy**
Sandhu A., Iida N., Masuda H., ORAL A., Bending S. J.
Materials Research Society Symposium - Proceedings, vol.674, 2001 (Scopus)
- II. **Nanomechanics using an ultra-small amplitude AFM**
Hoffmann P. M., Jeffery S., ORAL A., Grimble R. A., Özer H. Ö., Pethica J. B.
Materials Research Society Symposium-Proceedings, vol.649, 2001 (Scopus)
- III. **A compact and modular scanning tunneling microscope**
ORAL A., Kaya I., Ellialtioglu R.
Doga, Turkish Journal of Physics, vol.16, no.6, pp.400-404, 1992 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **Flexible Organic Light Emitting Diodes (OLEDs) with multi-layer Graphene Anode**

Sharif P., ALEMDAR E., GÜNBAŞ E. G., ÇIRPAN A., ORAL A.

Graphene2020 VirtualInternational Conference Expo, 19 - 23 October 2020

II. **Flexible Organic Light Emitting Diodes (OLEDs) with multi-layerGraphene Anode**

Sharif P., ALEMDAR E., GÜNBAŞ E. G., ÇIRPAN A., ORAL A.

Graphene2020 VirtualInternational Conference Expo, 19 - 23 October 2020

III. **Multi-layered Conductive Films via Recursive Transfer-Print of Graphene onto Polymeric Foil**

Inkaya U., ÇELİK K., ORAL A.

Graphene Conference 2018, Dresden, Germany, 26 - 29 June 2018

IV. **High-density array of 10 nm ferromagnetic nano-islands patterned non-destructively by phase transformation with low-energy proton irradiation**

DUTTA T., PATHAK S., ASBAHİ M., ÇELİK K., LEE J. M., YANG P., SAİFULLAH M. S. M., ORAL A., BHATIA C., CHA J., et al.

The 4th International Symposium onAdvanced Magnetic Materials and Applications (ISAMMA 2017)10-13

December 2017 – Phu Quoc, Vietnam, 10 - 13 December 2017

V. **Development of High Speed AFM Operating at 1,000 Lines/s amp 15x15x3µm XYZ Scan Range**

ÇELİK Ü., KEHRİBAR İ., UYSALLI Y., ÇELİK K., ÖZER H. Ö., ORAL A.

2017 MRS Fall Meeting, Boston, United States Of America, 26 November - 01 December 2017

VI. **Characterization of Multilayered Conductive Films Produced by Multiple Transfer Printing Graphene onto Ultra-Thin PVC Foil**

Inkaya U., ÇELİK K., ORAL A.

MRS 2017 Fall Meeting, Boston, United States Of America, 30 November 2017

VII. **Development of High Speed AFM operating at 1,000 Lines/s 15x15x3µm XYZ Scan Area**

ÇELİK U., KEHRİBAR İ., ÇELİK K., ÖZER H. Ö., ORAL A.

ISSS-8 The 8Th International Symposium on Surface Science, 22 - 26 October 2017

VIII. **Ups and Downs of Running a Spinoff company for 19 years!**

ORAL A.

Bridging Science and Business working group of the Marie Curie Alumni Association (MCAA), 11 - 12 September 2017

IX. **Flexible Multilayer Graphene Hall Sensors on Ultra-Thin PVC Foil**

ORAL A.

Graphene Malaysia 2017, 10 - 11 July 2017

X. **Development of SAMPLE Scanning High Speed AFM operating at 1,000 Lines/s 15µm x 15µm x 3µm**

ÇELİK Ü., UYSALLI Y., KEHRİBAR İ., ÇELİK K., ÖZER H. Ö., ORAL A.

The 19th InternationalScanning Probe Microscopy Conference KYOTO JAPAN, 17 - 19 May 2017

XI. **Why Graphene growth on Dielectrics is fascinating**

KARAMAT S., ORAL A.

SurfCoat Korea 2017 International Conference, 29-31 March (2017), 29 - 31 March 2017

XII. **Status and trends in high performance magnetic imaging using Scanning Probe Microscopy SPM**

ORAL A.

THE 1st UKM-ISESCO-COMSATS INTERNATIONAL WORKSHOP ON NANOTECHNOLOGY FOR YOUNG SCIENTISTS (IWYS 2016), 28 - 30 November 2016

XIII. **High performance magnetic imaging using Scanning Probe Microscopy SPM at low temperatures 20mK 300K**

ORAL A.

11th International Conference on New Theories, Discoveries, Applicationsof Superconductors and Related Materials, 11 - 16 September 2016

XIV. **Surface and Compositional Study of Graphene grown on Lithium Niobate LiNbO3 substrates by Chemical Vapour Deposition**

KARAMAT S., ÇELİK U., ORAL A.

American Physical Society, APS, March Meeting 2016Baltimore, ABD, 14 - 18 March 2016

XV. **Development of tip Scanning High Speed AFM operating at 1 000 Lines s 15µm**

ÇELİK U., KEHRİBAR İ., ORAL A.

- American Physical Society, APS, March Meeting 2016 Baltimore, ABD, 14 - 18 March 2016
- XVI. **Structural and Compositional Study of Graphene grown on SrTiO₃ by Chemical Vapour Deposition**
KARAMAT S., ÇELİK Ü., ORAL A.
American Physical Society, APS, March Meeting 2016 Baltimore, ABD, 14 - 18 March 2016
- XVII. **Radiation pressure excitation of Low Temperature Atomic Force Magnetic Force Microscope LT AFM MFM in 4 300K Temperature Range**
KARCI Ö., ÇELİK Ü., UYSALLI Y., ÖZER H. Ö., ORAL A.
16th European Conference on Applications of Surface and Interface Analysis, ECASIA'15, Granada, Spain, 28 September - 01 October 2015
- XVIII. **Non contact Atomic Force Microscope nAFM Operation in UHV Using Radiation Pressure Excitation of Cantilever**
UYSALLI Y., ÇELİK Ü., KARCI Ö., ÖZER H. Ö., ORAL A.
The NC-AFM 2015, 18th International Conference on non-contact Atomic Force Microscopy (NC-AFM), Cassis, Fransa, 7-11 Eylül 2015, CASSIS, France, 7 - 11 September 2015
- XIX. **1fm Hz Noise Level Low Temperature Atomic Force Magnetic Force Microscope LT AFM MFM in 20mK 300K Temperature Range**
KARCI Ö., ÇELİK Ü., DEDE M., ORAL A.
The 11th International Conference on Materials & Mechanisms of Superconductivity (M2S)CICG, Geneva, Switzerland, 23 - 28 August 2015, CENEVRE, Switzerland, 23 - 28 August 2015
- XX. **Radiation pressure excitation of low temperature atomic force magnetic force microscope LT AFM MFM for imaging**
KARCI Ö., ÇELİK Ü., UYSALLI Y., ÖZER H. Ö., ORAL A.
The 11th International Conference on Materials & Mechanisms of Superconductivity (M2S)CICG, Geneva, Switzerland, 23 - 28 August 2015, CENEVRE, Switzerland, 23 - 28 August 2015
- XXI. **Piezoelectric Properties of Layer by Layer Films**
OZLEM S., UMİT C., EREL GÖKTEPE İ., BAYRAM G., ORAL A.
11th Nanoscience and Nanotechnology Conference (NanoTR-11), Turkey, 22 - 25 June 2015
- XXII. **1fm Hz Noise Level Fiber Fabry Perot Interferometers Radiation pressure excitation of Low Temperature Atomic Force Magnetic Force Microscope LT AFM MFM in 20mK 300K Temperature Range**
ORAL A.
9th International Conference on Magnetic and Superconducting Materials (MSM15), 30 April - 03 May 2015
- XXIII. **Peeling of Chemical Vapour Deposition Graphene Grown on Platinum and Copper foils using Alkaline Solutions for Reuseable Substrates**
KARAMAT S., SONUSEN S., ÇELİK Ü., UYSALLI Y., ORAL A.
MRS Spring Meeting, 6-10 Nisan 2015, San Francisco, ABD, 6 - 10 April 2015
- XXIV. **Growth of Few Layer Single Crystal and Coalesced Graphene Grains on Platinum by Chemical Vapour Deposition**
KARAMAT s., SELDA S., UMİT Ç., UYSALLI Y., ÖZGÖNÜL E., ORAL A.
ImagineNano 2015 Conference ,10-13 Mart 2015, Bilbao, İspanya, 10 - 13 March 2015
- XXV. **Chemical Vapour Deposition of Graphene with Re useable Pt and Cu substrates for Flexible Electronics**
KARAMAT S., SONUSEN S., ÇELİK Ü., UYSALLI Y., ORAL A.
American Physical Society, APS, March Meeting 20152-6, Mart 2015; San Antonio, Texas, 2 - 06 March 2015
- XXVI. **An ultra low temperature scanning Hall probe microscope SHPM for magnetic imaging below 40 mK**
KARCI Ö., PIATEK J., JORBA P., DEDE M., RONNOW H., ORAL A.
American Physical Society, APS, March Meeting 20152-6, Mart 2015; San Antonio, Texas, San-Antonio, Northern Mariana Islands, 2 - 06 March 2015
- XXVII. **Structural and electrical characterization of electro spray deposited PZT sol-PZT nanopowder composite thick films**
Gurbuz M., Celik U, Sakurai H, Kuromitsu Y, ORAL A., Dogan A.

2014 Joint IEEE International Symposium on the Applications of Ferroelectric, International Workshop on Acoustic Transduction Materials and Devices and Workshop on Piezoresponse Force Microscopy, ISAF/IWATMD/PFM 2014, Pennsylvania, United States Of America, 12 - 16 May 2014

- XXVIII. **Variable temperature Scanning Hall Probe Microscopy (SHPM) using quartz crystal AFM feedback**
Dede M., Urkmen K., ORAL A., Farrer I., Ritchie D.
INTERMAG 2006 - IEEE International Magnetics Conference, San Diego, CA, United States Of America, 8 - 12 May 2006, pp.584
- XXIX. **Scanning Hall Probe Microscopy (SHPM) using quartz crystal AFM feedback**
Dede M., Ürkmen K., ORAL A.
INTERMAG ASIA 2005: Digests of the IEEE International Magnetics Conference, Nagoya, Japan, 4 - 08 April 2005, pp.100
- XXX. **Linear measurements of nanomechanical phenomena using small-amplitude AFM**
Hoffmann P. M., Patil S., Matei G., Tanulku A., Grimble R., Özer H. Ö., Jeffery S., ORAL A., Pethica J.
2004 MRS Fall Meeting, Boston, MA, United States Of America, 29 November - 03 December 2004, vol.838, pp.7-12
- XXXI. **Room temperature scanning micro-hall probe microscopy under extremely large pulsed magnetic fields**
Sandhu A., Masuda H., ORAL A.
Intermag 2003: International Magnetics Conference, Boston, MA, United States Of America, 28 March - 03 April 2003
- XXXII. **Room temperature scanning micro-Hall probe microscopy under extremely large pulsed magnetic fields**
Sandhu A., Masuda H., ORAL A.
2003 IEEE International Magnetics Conference, Intermag 2003, Massachusetts, United States Of America, 30 March - 03 April 2003
- XXXIII. **RT-SHPM imaging of permalloy microstructures and garnet films using new high performance INSB sensors**
ORAL A., Kaval M., Dede M., Sandhu A.
2002 IEEE International Magnetics Conference-2002 IEEE INTERMAG, Amsterdam, Netherlands, 28 April - 02 May 2002
- XXXIV. **RT-SHPM imaging of permalloy microstructures and garnet films using new high performance InSb sensors**
ORAL A., Kaval M., Dede M., Sandhu A.
2002 IEEE International Magnetics Conference, INTERMAG Europe 2002, Amsterdam, Netherlands, 28 April - 02 May 2002
- XXXV. **Magnetic imaging of ferromagnetic domains by room temperature scanning hall probe microscopy using GaAs/AlGaAs and bismuth micro-hall probes**
Sandhu A., Masuda H., ORAL A., Bending S., Inushima T.
Physics of Semiconductor Devices, Delhi, India, 11 - 15 December 2001, vol.4746 II, pp.950-955
- XXXVI. **Nanomechanics using an ultra-small amplitude AFM**
Hoffmann P., Jeffery S., ORAL A., Grimble R., Özer H. Ö., Pethica J.
Fundamentals of Nanoindentation and Nanotribology II, Boston, MA, United States Of America, 28 - 30 November 2000, vol.649
- XXXVII. **Direct and real-time observation of sub-micron domain dynamics in magnetically biased strontium ferrite permanent magnets by room temperature scanning micro-Hall probe microscopy**
Sandhu A., Iida N., Masuda H., ORAL A., Bending S. J.
Applications of Ferromagnetic and Optical Materials, Storage and Magnotoelectronics, San Francisco, CA, United States Of America, 16 - 20 April 2001, vol.674
- XXXVIII. **Room temperature magnetic imaging of magnetic storage media and garnet epilayers in the presence of external magnetic fields using a sub-micron GaAs SHPM**
SANDHU A., MASUDA H., Oral A., Bending S.
11th International Conference on Molecular Beam Epitaxy, Beijing, China, 11 - 15 September 2000, pp.899-905

XXXIX. MECHANICS OF CONTACTS AT LESS-THAN 100-Å SCALE - INDENTATION AND AFM

JARVIS S., WEIHS T., ORAL A., PETHICA J.

Symposium on Thin Films: Stresses and Mechanical Properties IV, at the 1993 Spring Meeting of the Materials-Research-Society, San-Francisco, Costa Rica, 12 - 16 April 1993, vol.308, pp.127-132

Supported Projects

ORAL A., Project Supported by Higher Education Institutions, FİBER GİRİŞİM ÖLÇERİN TİTANYUM DİOKSİT İLE KAPLANARAK GELİŞTİRİLMESİ, 2017 - 2017

ORAL A., Project Supported by Higher Education Institutions, ESNEK VE İNCE HALL SENSÖRLERİN GELİŞTİRİLMESİ, 2017 - 2017

ORAL A., Project Supported by Higher Education Institutions, SPIN ON DOPANT VE SPIN ON GLASS KULLANILARAK TEK KRİSTAL SİLİSYUM NMOS TİPİ TRANSİSTÖR ÜRETİMİ, 2017 - 2017

ORAL A., Project Supported by Higher Education Institutions, Ultra Düşük Gürültülü Fiber Fabry-Perot İnterferometresi Geliştirilmesi, 2015 - 2015

Metrics

Publication: 113

Citation (WoS): 1786

Citation (Scopus): 1448

H-Index (WoS): 24

H-Index (Scopus): 22

Non Academic Experience

NanoSis Bilimsel Cihazlar Teknik Danışmanlık Ticaret Ltd.Şti

NanoManyetik Bilimsel Cihazlar Sanayi Ticaret Ltd. Şti.