

Asst. Prof. MUHAMMED SAYRAÇ

Personal Information

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Education Information

Doctorate, Texas A&M University - College Station, United States Of America 2013 - 2017

Post Graduate, Texas A&M University, United States Of America 2011 - 2013

Under Graduate, Turkey 2005 - 2009

Research Areas

Natural Sciences

Academic Titles / Tasks

Assistant Professor, Sivas Cumhuriyet University, Mühendislik Fakültesi, Nanoteknoloji Mühendisliği, 2020 - Continues

Research Assistant, Cankiri Karatekin University, Faculty Of Science, Department Of Physics, 2017 - 2020

Courses

Nanomalzemelerin Karakterizasyonu Laboratuvarı-II, Under Graduate, 2021 - 2022

Kariyer Planlama, Under Graduate, 2021 - 2022

Mühendisler için Termodinamik - II(İngilizce), Under Graduate, 2021 - 2022

Mühendisler İçin Bilgisayar Uyg. - II, Under Graduate, 2021 - 2022

Modern Fizik (İngilizce), Under Graduate, 2021 - 2022

Mühendisler İçin Bilgisayar Uyg. - I (İngilizce), Under Graduate, 2020 - 2021

Isı Aktarımı, Under Graduate, 2020 - 2021

Mühendisler için Olasılık ve İstatistik(İng), Under Graduate, 2020 - 2021

Mühendisler için Termodinamik - I (İngilizce), Under Graduate, 2020 - 2021

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Influence of hydrostatic pressure, temperature, and terahertz laser field on the electron-related optical responses in an asymmetric double quantum well**
SAYRAÇ M., Turkoglu A., Ungan F.
EUROPEAN PHYSICAL JOURNAL B, vol.94, no.6, 2021 (Journal Indexed in SCI)
- II. **Generation of even and odd harmonics in the XUV region with controlling the relative delay and polarization of two-color fields**
SAYRAÇ M., Kolomenskii A. A. , Dong J., Schuessler H. A.
Optik, vol.226, 2021 (Journal Indexed in SCI Expanded)
- III. **Generation of enhanced even harmonics of fundamental radiation in temporally separated two-color**

laser fields

Sayrac M., Kolomenskii A. A. , Dong J., Schuessler H. A.

JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA, vol.233, pp.22-27, 2019 (Journal Indexed in SCI)

- IV. **Pressure dependence of high order harmonic generation in nitrogen molecular gas and atmospheric air**
Sayrac M., Kolomenskii A. A. , Schuessler H. A.
OPTIK, vol.179, pp.994-1000, 2019 (Journal Indexed in SCI)
- V. **Pressure optimization and phase matching of high harmonics generation in CO₂ and C₂H₂ molecular gases**
Sayrac M., Kolomenskii A. A. , Schuessler H. A.
JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA, vol.229, pp.1-6, 2018 (Journal Indexed in SCI)
- VI. **Dissociative ionization of acetonitrile in intense femtosecond laser fields**
Boran Y., Kolomenskii A. A. , Sayrac M., KAYA N., Schuessler H. A. , Strohaber J.
JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS, vol.50, no.13, 2017 (Journal Indexed in SCI)
- VII. **Nonlinear mixing of optical vortices with fractional topological charge in Raman sideband generation**
Strohaber J., Boran Y., Sayrac M., Johnson L., Zhu F., Kolomenskii A. A. , Schuessler H. A.
JOURNAL OF OPTICS, vol.19, no.1, 2017 (Journal Indexed in SCI)
- VIII. **Extension of filament propagation in water with Bessel-Gaussian beams**
Kaya G., KAYA N., Sayrac M., Boran Y., Strohaber J., Kolomenskii A. A. , Amani M., Schuessler H. A.
AIP ADVANCES, vol.6, no.3, 2016 (Journal Indexed in SCI)
- IX. **Probing nonadiabatic molecular alignment by spectral modulation**
KAYA N., Kaya G., Sayrac M., Horan Y., Anumula S., Strohaber J., Kolomenskii A. A. , Schuessler H. A.
OPTICS EXPRESS, vol.24, no.3, pp.2562-2576, 2016 (Journal Indexed in SCI)
- X. **High harmonic generation in Ne and H-2 gas mixtures**
Sayrac M., Kolomenskii A. A. , Strohaber J., Schuessler H. A.
JOURNAL OF THE OPTICAL SOCIETY OF AMERICA B-OPTICAL PHYSICS, vol.32, no.12, pp.2400-2405, 2015 (Journal Indexed in SCI)
- XI. **Pressure optimization of high harmonic generation in a differentially pumped Ar or H-2 gas jet**
Sayrac M., Kolomenskii A. A. , Anumula S., Boran Y., Hart N. A. , KAYA N., Strohaber J., Schuessler H. A.
REVIEW OF SCIENTIFIC INSTRUMENTS, vol.86, no.4, 2015 (Journal Indexed in SCI)

Articles Published in Other Journals

- I. **Computation of Refractive Index Values of Inert Gases at Near Infrared and XUV Region based on Mathematica Software**
SAYRAÇ M.
Adiyaman University Journal of Science, vol.11, no.1, 2021 (Other Refereed National Journals)
- II. **High Harmonic Generation in Ar and N₂ Gas Mixture Using Ultrashort High Power Laser System**
SAYRAÇ M.
Journal of the Institute of Science and Technology, pp.1659-1665, 2020 (Other Refereed National Journals)
- III. **Characterization of GaAs/GaAlAs Heterostructures Grown on GaAsSubstrate using High Resolution X-ray Diffraction Method**
Sayrac H., SAYRAÇ M., Elagöz S.
Afyon Kocatepe Üniversitesi Fen ve Mühendislik Bilimleri Dergisi, 2020 (Refereed Journals of Other Institutions)
- IV. **BEHAVIOUR OF LASER BEAM IN NONLINEAR MEDIA**
SAYRAÇ M., SAYRAÇ H., ARI M., TAPLAMACIOĞLU M. C.
International Journal on "Technical and Physical Problems of Engineering" (IJTPE), 2019 (Refereed Journals of

Other Institutions)

V. GENERAL OVERVIEW OF WIRELESS COMMUNICATION TECHNOLOGY

SAYRAÇ M., ARI M., TAPLAMACIOĞLU M. C.

International Journal on "Technical and Physical Problems of Engineering" (IJTPE), vol.11, pp.25-30, 2019

(Refereed Journals of Other Institutions)

Refereed Congress / Symposium Publications in Proceedings

- I. **ALIGNMENT DEPENDENCE OF HIGH HARMONIC GENERATION SIGNAL FROM CO₂ MOLECULE USING PUMP-PROBE TECHNIQUE**
SAYRAÇ M.
OECD STUDIES CONFERENCE OF NATURAL AND ENVIRONMENTAL SCIENCES, Ankara, Turkey, 19 - 21 March 2020
- II. **DIFFRACTIVE IMAGING USING A TABLE-TOP COHERENT FEMTOSECOND SOFT X RAY LASER SOURCE**
SAYRAÇ M.
ANKARA II. ULUSLARARASI BİLİMSEL ARAŞTIRMALAR KONGRESİ, 6 - 08 March 2020
- III. **GaAs/Ga_{1-x}Al_xAs Heteroyapısının Yapısal Karakterizasyonu**
SAYRAÇ H., SAYRAÇ M.
25. Yoğun Madde Fiziği Toplantısı, Turkey, 20 December 2019
- IV. **PROPAGATION OF GAUSSIAN BEAM IN NONLINEAR MEDIA**
SAYRAÇ M., SAYRAÇ H., ARI M., TAPLAMACIOĞLU M. C.
15th International Conference on "Technical and Physical Problems of Electrical Engineering", 14 - 15 October 2019
- V. **ARCHITECTURE AND FUTURE PROSPECT OF 5G TECHNOLOGY**
SAYRAÇ M., ARI M., TAPLAMACIOĞLU M. C., REHABI J.
2019 International Conference on Multidisciplinary, Education, Science, Engineering and Technology, 20 - 21 September 2019
- VI. **Gaussian laser beam and its parameters**
SAYRAÇ H., SAYRAÇ M.
Turkish Physical Society-35th International Physics Congress (TPS-, 4 - 08 September 2019
- VII. **Structural characterization of GaAs/ GaAlAs heterostructures by XRD method**
SAYRAÇ H., SAYRAÇ M., Elagöz S.
Turkish Physical Society-35th International Physics Congress (TPS-35)", 4 - 08 September 2019
- VIII. **Femtosanilyeli Lazerler ile Doğrusal Olmayan Frekans Dönüşümü ve Uygulamaları**
SAYRAÇ M.
24. Yoğun Madde Fiziği Ankara Toplantısı, Ankara, Turkey, 21 December 2018
- IX. **ADVANTAGES AND CHALLENGES OF FREE SPACE OPTICAL COMMUNICATION**
SAYRAÇ M., ARI M., TAPLAMACIOĞLU M. C.
14th International Conference on Technical and Physical Problems of Electrical Engineering, Nakhchivan, Azerbaijan, 15 - 17 October 2018
- X. **HIGH ORDER HARMONIC GENERATION FROM LASER ALIGNED MOLECULE**
SAYRAÇ M.
II. International Scientific and Vocational Studies Congress, 5 - 08 July 2018
- XI. **PRESSURE DEPENDENCE OF HIGH ORDER HARMONIC GENERATION IN NITROGEN MOLECULE**
SAYRAÇ M.
II. INTERNATIONAL SCIENTIFIC AND VOCATIONAL STUDIES CONGRESS, Turkey, 5 - 08 July 2018
- XII. **HIGH HARMONIC GENERATION IN TWO COLOR LASER FIELD**
SAYRAÇ M.
II. INTERNATIONAL SCIENTIFIC AND VOCATIONAL STUDIES CONGRESS, 5 - 08 July 2018
- XIII. **Nonlinear mixing of optical vortices with fractional topological charges in raman sideband generation**

- Stroh Haber J., Boran Y., SAYRAÇ M., Johnson L., Zhu F., Kolomenskii A. A. , Schuessler H. A.
 APS March Meeting 2017, New Orleans, Louisiana, United States Of America, 13 - 17 March 2017, pp.1253
- XIV. **Toward Imaging of Small Objects with XUV Radiation**
 SAYRAÇ M., Kolomenskii A. A. , Boran Y., Schuessler H. A.
 APS March Meeting 2017, New Orleans, Louisiana, United States Of America, 13 - 17 March 2017, pp.1253
- XV. **Manifestations of induced molecular alignment in the interaction of ultrafast laser pulses with gases**
 Kolomenskii A. A. , KAYA N., Kaya G., Sayrac M., Boran Y., Stroh Haber J., Schuessler H. A.
 25th Annual International Laser Physics Workshop (LPHYS), Yerevan, Armenia, 11 - 15 July 2016, vol.826
- XVI. **Intensity dependences and angular distributions of acetonitrile fragments under irradiation by femtosecond laser pulses**
 BORAN Y., Kolomenskii A. A. , SAYRAÇ M., Schuessler H., Stroh Haber J.
 2016 Southwest Ultrafast Conference – University of Texas at Austin, University of Texas at Austin, United States Of America, 16 June 2016
- XVII. **High harmonic generation with two-color fields**
 SAYRAÇ M., Kolomenskii A. A. , BORAN Y., Stroh Haber J., Schuessler H.
 2016 Southwest Ultrafast Conference – University of Texas at Austin, Austin, United States Of America, 16 June 2016
- XVIII. **Ionization and dissociation of acetonitrile with intense laser pulses**
 BORAN Y., Kolomenskii A. A. , SAYRAÇ M., Schuessler H., Stroh Haber J.
 Bulletin of the American Physical Society, Waco, Texas, United States Of America, 29 - 31 October 2015, vol.60
- XIX. **Generation of enhanced even and odd harmonics in a two-color laser field**
 SAYRAÇ M., Kolomenskii A. A. , BORAN Y., Stroh Haber J., Schuessler H.
 Bulletin of the American Physical Society, Waco, Texas, United States Of America, 29 - 31 October 2015, vol.60
- XX. **Enhancing high harmonic flux**
 SAYRAÇ M., Kolomenskii A. A. , Anumula S., BORAN Y., KAYA G., KAYA N., Schuessler H.
 5th international Conference on Attosecond Physics, Canada, 7 - 08 June 2015
- XXI. **Molecular alignment control of filamentation**
 KAYA N., KAYA G., SAYRAÇ M., Anumula S., BORAN Y., Kolomenskii A. A. , Amani M., Schuessler H.
 5th international Conference on Attosecond Physics, Canada, 07 June 2015
- XXII. **Improving high harmonic generation conversion efficiency**
 SAYRAÇ M., Kolomenskii A. A. , Anumula S., BORAN Y., KAYA G., KAYA N., Schuessler H.
 Bulletin of the American Physical Society, Baytown, Texas, United States Of America, 5 - 07 March 2015, vol.60
- XXIII. **Optimum conditions of high order harmonic generation with a gas jet**
 SAYRAÇ M., Kolomenskii A. A. , Anumula S., BORAN Y., KAYA G., KAYA N., Schuessler H.
 Bulletin of the American Physical Society, College Station, Texas, United States Of America, 17 - 19 October 2014, vol.59
- XXIV. **New possibilities for the efficiency enhancement of the high harmonic generation process in gas mixtures of Ne and H₂**
 SAYRAÇ M., Kolomenskii A. A. , Anumula S., KAYA G., KAYA N., Schuessler H.
 Bulletin of the American Physical Society, College Station, Texas, United States Of America, 17 - 19 October 2014, vol.59
- XXV. **Molecular rotational constants measured with photoelectron ionization yield**
 KAYA G., KAYA N., Hart N., SAYRAÇ M., Anumula S., Stroh Haber J., Kolomenskii A. A. , Schuessler H.
 Bulletin of the American Physical Society, College Station, Texas, United States Of America, 17 - 19 October 2014, vol.59
- XXVI. **Filament propagation length of femtosecond pulses with Gaussian and Bessel-Gaussian modes**
 KAYA N., SAYRAÇ M., KAYA G., BORAN Y., Stroh Haber J., Kolomenskii A. A. , Schuessler H.
 Bulletin of the American Physical Society, College Station, United States Of America, 17 - 19 October 2014, vol.59
- XXVII. **Improving conversion efficiency of high harmonic generation with gas mixtures**
 SAYRAÇ M., Kolomenskii A. A. , Stroh Haber J., BORAN Y., KAYA N., Schuessler H.
 The 24th International Conference on Atomic Physics (ICAP), Washington, Kiribati, 3 - 08 August 2014

- XXVIII. **Molecular alignment measured with photoelectron ionization yields**
KAYA G., KAYA N., Strohaber J., Hart N., SAYRAÇ M., Kolomenskii A. A. , Schuessler H.
The 24th International Conference on Atomic Physics (ICAP), Washington, Kiribati, 3 - 08 August 2014
- XXIX. **Effect of different transverse modes of femtosecond pulses on filament propagation**
KAYA N., KAYA G., SAYRAÇ M., Strohaber J., Kolomenskii A. A. , Schuessler H.
The 24th International Conference on Atomic Physics (ICAP), Washington, Kiribati, 3 - 08 August 2014
- XXX. **Pressure optimization of high harmonic generation with argon gas jet**
SAYRAÇ M., Kolomenskii A. A. , Strohaber J., BORAN Y., KAYA G., KAYA N., Schuessler H.
The 24th International Conference on Atomic Physics (ICAP), Washington, Kiribati, 3 - 08 August 2014
- XXXI. **Optimization and control of the buildup of high harmonics by spatial pulse shaping**
Kolomenskii A. A. , SAYRAÇ M., Cook E., Strohaber J., Schuessler H.
4th International Conference on Attosecond Physics, Paris, France, 8 - 12 July 2013
- XXXII. **Enhancement of HHG in neon-hydrogen gas mixtures**
Kolomenskii A. A. , SAYRAÇ M., Strohaber J., Schuessler H.
4th International Conference on Attosecond Physics, Paris, France, 8 - 12 July 2013
- XXXIII. **Control of high harmonic generation by wave front shaping**
Kolomenskii A. A. , SAYRAÇ M., Cook E., Wood J., Nava R., Strohaber J., Paulus G. G. , Schuessler H.
The 23rd International Conference on Atomic Physics, France, 23 - 27 July 2012

Supported Projects

Özçelik S., Sayraç M., Özen Y., TUBITAK Project, Yakın Kızıl Ötesi Spektrumu Soğurucu Optik Filtre Geliştirilmesi, 2021 - 2023

Sayraç M., Alyar H., Project Supported by Higher Education Institutions, Metal Katkılı Bakır Oksit İnce Filmlerin Sentezlenmesi ve Özelliklerinin İncelenmesi, 2019 - 2021

Edit Congress and Symposium Activities

Yoğun Madde Fiziği , Invited Speaker, Ankara, Turkey, 2020

Citations

Total Citations (WOS):48

h-index (WOS):5

Scholarships

Turkish Higher Education, Ministry of Education, 2011 - 2017