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Kişisel Bilgiler

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Eğitim Bilgileri

Doktora, Kırgızistan-Rusya Slav Üniversitesi, Fizik, Kırgızistan 1995 - 1999

Lisans, Yusuf Balasagin Kırgız Milli Üniversitesi, Uygulamalı Matematik, Kırgızistan 1990 - 1995

Yabancı Diller

İngilizce, B2 Orta Üstü

Rusça, C1 İleri

Yaptığı Tezler

Doktora, Mathematical modelling of interaction of electromagnetic fields with plasma in a spherical microwave discharge, Kırgızistan-Rusya Slav Üniversitesi, Fizik, 1999

Araştırma Alanları

Temel Bilimler, Fizik, Gazlar, Plazmalar ve Elektriksel Boşalmalar Fiziği, Plazma fiziği

Akademik Unvanlar / Görevler

Prof.Dr., Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, 2018 - Devam Ediyor

Doç.Dr., Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, 2010 - 2018

Yrd.Doç.Dr., Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, 2005 - 2009

Yrd.Doç.Dr., Çanakkale Onsekiz Mart Üniversitesi, Fen Ve Edebiyat Fakültesi, Matematik Bölümü, 2001 - 2002

Verdiği Dersler

Introduction to Plasma Physics, Lisans, 2020 - 2021

METHODS OF MATHEMATICAL PHYSICS I, Yüksek Lisans, 2019 - 2020

Mathematical Methods in Physics I, Lisans, 2020 - 2021

MATHEMATICAL METHODS IN PHYSICS II, Lisans, 2019 - 2020

BASIC LINEAR ALGEBRA, Lisans, 2016 - 2017, 2018 - 2019

Yönetilen Tezler

- RAFATOV İ., Investigation of nonlinear oscillations in the gas discharge-semiconductor system: Effect of different fluid modelling approaches, Yüksek Lisans, C.YEŞİL(Öğrenci), 2018
- RAFATOV İ., Numerical analysis of plasma properties in the glow discharge: Accuracy and applicability of simple and extended fluid models, Yüksek Lisans, K.KAYMAZLAR(Öğrenci), 2017
- RAFATOV İ., Derivation of the parallel PIC/MCC numerical code and its application to the kinetic analysis of photoresonance plasma and the problem of identification of impurities within the PLES method, Doktora, C.KUŞOĞLU(Öğrenci), 2017
- KARASÖZEN B., RAFATOV İ., Numerical modelling of spatio-temporal patterns in a DC-driven gas discharge-semiconductor system, Yüksek Lisans, G.ÖZDEN(Öğrenci), 2015
- ALEMDAROĞLU H. N. , RAFATOV İ., One dimensional numerical analysis of plasma properties in the discharge channel of a Hall effect thruster, Yüksek Lisans, Ç.YÜNCÜLER(Öğrenci), 2014
- RAFATOV İ., Simulation of glow discharge plasmas by using parallel particle in cell/Monte Carlo collision method: The effects of number of super particles used in the simulations, Yüksek Lisans, E.ERDEN(Öğrenci), 2013
- RAFATOV İ., Numerical investigation of self-organization and stable burning conditions of moderate pressure glow discharges in argon gas, Yüksek Lisans, E.EYLENCEOĞLU(Öğrenci), 2011
- RAFATOV İ., Numerical investigation of a DC glow discharge in an argon gas: Two-component plasma model, Yüksek Lisans, E.KEMANECİ(Öğrenci), 2009

Jüri Üyelikleri

Doçentlik Sınavı, Doçentlik Sınavı, Orta Doğu Teknik Üniversitesi, Ekim, 2020

SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- I. **Parametric study of coaxial dielectric barrier discharge in atmospheric pressure argon**
Li H., Yuan C., Kudryavtsev A., Katircioglu T. Y. , RAFATOV İ.
PHYSICS OF PLASMAS, cilt.28, sa.11, 2021 (SCI İndekslerine Giren Dergi)
- II. **Analysis of parameters of coaxial dielectric barrier discharges in argon flow at atmospheric pressure**
Li H., Yuan C., Kudryavtsev A., Astafiev A., Bogdanov E., Katircioglu T. Y. , RAFATOV İ.
JOURNAL OF APPLIED PHYSICS, cilt.129, sa.15, 2021 (SCI İndekslerine Giren Dergi)
- III. **Transition from periodic to chaotic oscillations in a planar gas discharge-semiconductor system**
Yuan C., YEŞİL C., Yao J., Zhou Z., RAFATOV İ.
PLASMA SOURCES SCIENCE & TECHNOLOGY, cilt.29, sa.6, 2020 (SCI İndekslerine Giren Dergi)
- IV. **Numerical evidence of spontaneous division of dissipative solitons in a planar gas discharge-semiconductor system**
RAFATOV İ.
PHYSICS OF PLASMAS, cilt.26, sa.9, 2019 (SCI İndekslerine Giren Dergi)
- V. **Transition from homogeneous stationary to oscillating state in planar gas discharge-semiconductor system in nitrogen: Effect of fluid modelling approach**
RAFATOV İ., YEŞİL C.
PHYSICS OF PLASMAS, cilt.25, sa.8, 2018 (SCI İndekslerine Giren Dergi)
- VI. **PIC/MCC analysis of a photoresonance plasma sustained in a sodium vapor**
SARIKAYA C. K. , RAFATOV İ., KUDRYAVTSEV A. A.
PHYSICS OF PLASMAS, cilt.24, sa.8, 2017 (SCI İndekslerine Giren Dergi)
- VII. **An evidence of period doubling bifurcation in a dc driven semiconductor-gas discharge plasma**
MANSUROGLU D., UZUN-KAYMAK I. U. , RAFATOV İ.

- PHYSICS OF PLASMAS, cilt.24, sa.5, 2017 (SCI İndekslerine Giren Dergi)
- VIII. **Spectroscopic study and numerical simulation of low-pressure radio-frequency capacitive discharge with argon downstream**
Tanisli M., RAFATOV İ., Sahin N., Mertadam S., Demir S.
CANADIAN JOURNAL OF PHYSICS, cilt.95, sa.2, ss.190-200, 2017 (SCI İndekslerine Giren Dergi)
- IX. **Three-dimensional numerical modelling of temporal and spatial pattern formation in a dc-driven gas discharge-semiconductor system**
RAFATOV İ.
PLASMA SOURCES SCIENCE & TECHNOLOGY, cilt.25, sa.6, 2016 (SCI İndekslerine Giren Dergi)
- X. **Multiple stationary filamentary states in a planar dc-driven gas discharge-semiconductor system**
RAFATOV İ.
PHYSICS OF PLASMAS, cilt.23, sa.12, 2016 (SCI İndekslerine Giren Dergi)
- XI. **Particle in cell/Monte Carlo collision analysis of the problem of identification of impurities in the gas by the plasma electron spectroscopy method**
SARIKAYA C. K. , RAFATOV İ., KUDRYAVTSEV A. A.
PHYSICS OF PLASMAS, cilt.23, sa.6, 2016 (SCI İndekslerine Giren Dergi)
- XII. **Two-dimensional hybrid Monte Carlo-fluid modelling of dc glow discharges: Comparison with fluid models, reliability, and accuracy**
EYLENCEOGLU E., RAFATOV İ., KUDRYAVTSEV A. A.
PHYSICS OF PLASMAS, cilt.22, sa.1, 2015 (SCI İndekslerine Giren Dergi)
- XIII. **Extension of spatiotemporal chaos in glow discharge-semiconductor systems**
AKHMET M., RAFATOV İ., FEN M. O.
CHAOS, cilt.24, sa.4, 2014 (SCI İndekslerine Giren Dergi)
- XIV. **Particle in Cell/Monte Carlo Collision Method for Simulation of RF Glow Discharges: Effect of Super Particle Weighting**
ERDEN E., RAFATOV İ.
CONTRIBUTIONS TO PLASMA PHYSICS, cilt.54, sa.7, ss.626-634, 2014 (SCI İndekslerine Giren Dergi)
- XV. **Account of nonlocal ionization by fast electrons in the fluid models of a direct current glow discharge**
RAFATOV İ., BOGDANOV E. A. , KUDRYAVTSEV A. A.
PHYSICS OF PLASMAS, cilt.19, sa.9, 2012 (SCI İndekslerine Giren Dergi)
- XVI. **On the accuracy and reliability of different fluid models of the direct current glow discharge**
RAFATOV İ., BOGDANOV E. A. , KUDRYAVTSEV A. A.
PHYSICS OF PLASMAS, cilt.19, sa.3, 2012 (SCI İndekslerine Giren Dergi)
- XVII. **Effect of focusing geometry on the continuous optical discharge properties**
Rafatov I.
PHYSICS LETTERS A, cilt.373, sa.37, ss.3336-3341, 2009 (SCI İndekslerine Giren Dergi)
- XVIII. **Radiative gas-dynamic model of a continuous optical discharge in a gravitational field: quasi-optical approximation**
Rafatov I.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, cilt.42, sa.15, 2009 (SCI İndekslerine Giren Dergi)
- XIX. **Modelling of a continuous optical discharge stabilized by a gas flow in quasi-optical approximation**
RAFATOV İ., YEDIERLER B., KULUMBAEV E. B.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, cilt.42, sa.5, 2009 (SCI İndekslerine Giren Dergi)
- XX. **Spatiotemporal patterns in a dc semiconductor-gas-discharge system: Stability analysis and full numerical solutions**
Rafatov I. R. , SIJACIC D. D. , EBERT U.
PHYSICAL REVIEW E, cilt.76, sa.3, 2007 (SCI İndekslerine Giren Dergi)
- XXI. **Modelling of non-uniform DC driven glow discharge in argon gas**
Rafatov I. R. , AKBAR D., BILIKMEN S.
PHYSICS LETTERS A, cilt.367, ss.114-119, 2007 (SCI İndekslerine Giren Dergi)

- XXII. **On modelling of microwave heating of a ceramic material**
KOZLOV P. V. , Rafatov I. R. , KULUMBAEV E. B. , LELEVKIN V. M.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, cilt.40, sa.9, ss.2927-2935, 2007 (SCI İndekslerine Giren Dergi)
- XXIII. **On the modelling of a nonequilibrium spherical microwave discharge at atmospheric pressure**
Rafatov I. R.
CONTRIBUTIONS TO PLASMA PHYSICS, cilt.47, sa.3, ss.139-146, 2007 (SCI İndekslerine Giren Dergi)
- XXIV. **Self-consistent model of thermal and ionization non-equilibrium spherical microwave discharge**
Rafatov I., LELEVKIN V.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, cilt.38, sa.13, ss.2227-2236, 2005 (SCI İndekslerine Giren Dergi)
- XXV. **Oscillations in dc driven barrier discharges: Numerical solutions, stability analysis, and phase diagram**
SIJACIC D., EBERT U., Rafatov I.
PHYSICAL REVIEW E, cilt.71, sa.6, 2005 (SCI İndekslerine Giren Dergi)
- XXVI. **Modelling of a nonequilibrium spherical electric discharge under higher modes of incident microwaves**
Rafatov I., ÇAKIR S.
PHYSICS LETTERS A, cilt.338, ss.353-365, 2005 (SCI İndekslerine Giren Dergi)
- XXVII. **Modelling of a spherical electric discharge at atmospheric pressure under higher modes of incident microwaves**
Rafatov I., KOZLOV P., LELEVKIN V.
CONTRIBUTIONS TO PLASMA PHYSICS, cilt.45, sa.2, ss.139-154, 2005 (SCI İndekslerine Giren Dergi)
- XXVIII. **Period doubling cascade in glow discharges: Local versus global differential conductivity**
SIJACIC D., EBERT U., Rafatov I.
PHYSICAL REVIEW E, cilt.70, sa.5, 2004 (SCI İndekslerine Giren Dergi)
- XXIX. **Self-consistent model of non-equilibrium spherical microwave discharge**
Rafatov I., LELEVKIN V.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, cilt.37, sa.20, ss.2876-2885, 2004 (SCI İndekslerine Giren Dergi)

Diğer Dergilerde Yayınlanan Makaleler

- I. **One-dimensional fluid and hybrid numerical analysis of the plasma properties in the discharge channel of a Hall thruster**
YUNCULER C., RAFATOV İ., Ulusen D.
TURKISH JOURNAL OF PHYSICS, cilt.42, sa.6, ss.649-658, 2018 (ESCI İndekslerine Giren Dergi)
- II. **VALIDATION OF THE PARTICLE IN CELL MONTE CARLO COLLISION NUMERICAL CODE FOR THE RF DISCHARGE SIMULATION**
KUŞOĞLU SARIKAYA C., RAFATOV İ., ÇAKIR S.
Balkan Physics Letters, cilt.24, ss.36-47, 2016 (Diğer Kurumların Hakemli Dergileri)
- III. **Difference schemes for the class of singularly perturbed boundary value problems**
Sklyar S. N. , RAFATOV İ.
Applied Numerical Analysis & Computational Mathematics, cilt.1, sa.1, ss.223-230, 2004 (Diğer Kurumların Hakemli Dergileri)

Kitap & Kitap Bölümleri

- I. **Introduction to Simulation Methods for Gas Discharge Plasmas**
Rafatov İ., Kudryavtsev A.
Institute of Physics Publishing (IOP) , Bristol, 2020

Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

- I. **Transition to Chaos in Planar Gas Discharge-Semiconductor System in Nitrogen: Effect of Fluid Modelling Approach**
YEŞİL C., RAFATOV İ.
Computational Science and Engineering Conference BEYOND 2019, Ankara, Türkiye, 2 - 11 Eylül 2019, ss.61
- II. **Plasma physics research at METU and other research institutions in Turkey**
RAFATOV İ.
Symposium on Plasma Physics and Fusion Energy, American University of Beirut, Beyrut, Lübnan, 07 Kasım 2017
- III. **Incorporation of the electron energy equation into the hybrid Monte Carlo fluid model for glow discharge the applicability and reliability of the model**
EYLENCEOĞLU E., RAFATOV İ., Kudryavtsev A.
69th Annual Gaseous Electronics Conference, Bochum, Almanya, 10 - 14 Ekim 2016, cilt.61
- IV. **Particle in Cell Monte Carlo Collision Analysis of the Problem of Identification of Impurities in Gas within the Plasma Electron Spectroscopy Method**
KUŞOĞLU SARIKAYA C., RAFATOV İ., Kudryavtsev A.
69th Annual Gaseous Electronics Conference, Bochum, Almanya, 10 - 14 Ekim 2016, cilt.61
- V. **ARC DISCHARGE SIMULATIONS FOR MAGNETOPLASMA DYNAMIC THRUSTER WITH HOLLOW CATHODE**
Eliseev S., Saifutdinov A., Kudryavtsev A., ÇAKIR S., RAFATOV İ.
VIII International Conference on Plasma Physics and Plasma Technology (PPPT-8), Minsk, Belarus, 14 - 18 Eylül 2015
- VI. **NUMERICAL ANALYSIS OF FORMATION OF HEXAGONAL AND BAND STRUCTURES IN THE GAS DISCHARGE SEMICONDUCTOR SYSTEM**
RAFATOV İ.
VIII International Conference on Plasma Physics and Plasma Technology (PPPT-8), Minsk, Belarus, 14 - 18 Eylül 2015
- VII. **Study of Self organization and Current Filamentation in the Glow Gas Discharge System**
RAFATOV İ., ÇAKIR S.
International Workshop "Nonlinear Photonics: Theory, Materials, Applications", Sankt-Peterburg, Rusya, 29 Haziran - 02 Temmuz 2015, ss.21
- VIII. **Density Gradient Instability in Hall Thrusters**
ÇAKIR S., RAFATOV İ.
International Workshop "Nonlinear Photonics: Theory, Materials, Applications", Sankt-Peterburg, Rusya, 29 Haziran - 02 Temmuz 2015, ss.20
- IX. **VALIDATION AND PARALLELIZATION OF THE PARTICLE IN CELL/MONTE CARLO COLLISION NUMERICAL CODE FOR THE RF DISCHARGE SIMULATIONS**
SARIKAYA C. K. , RAFATOV İ., ÇAKIR S.
IEEE International Conference on Plasma Sciences (ICOPS), Belek, Türkiye, 24 - 28 Mayıs 2015
- X. **3D numerical model for a temporal and spatial pattern formation in a dc glow discharge semiconductor system**
RAFATOV İ.
The XXII Europhysics Conference on Atomic and Molecular Physics of Ionized Gases (ESCAMPIG, Greifswald, Almanya, 15 - 19 Temmuz 2014, ss.453-454
- XI. **Three dimensional numerical modelling of structure formation in the plasma of a dc driven barrier discharge**
RAFATOV İ.
International Conference on Physics of Low Temperature Plasma, Kazan, Rusya, 20 - 23 Mayıs 2014
- XII. **Investigation of pattern formation in planar gas discharges**
UZUN KAYMAK İ. Ü. , RAFATOV İ.
IMEPS International Middle East Conference on Plasma Science, Antalya, Türkiye, 23 - 25 Nisan 2014

- XIII. **Fluid and hybrid numerical modeling of plasma properties in the discharge channel of a Hall thruster**
Yüncüler Ç., RAFATOV İ., Uluşen D.
The International Middle East Plasma Science (IMEPS), Antalya, Türkiye, 23 - 25 Nisan 2014
- XIV. **Validation of the Particle in Cell Monte Carlo Collision numerical code for the RF discharge simulations**
KUŞOĞLU SARIKAYA C., RAFATOV İ., ÇAKIR S.
The International Middle East Plasma Science (IMEPS), Antalya, Türkiye, 23 - 25 Nisan 2014
- XV. **Numerical study of nonlinear oscillations and pattern formation in glow discharge semiconductor system**
RAFATOV İ., UZUN KAYMAK İ. Ü. , ÇAKIR S.
Zvenigorod International Conference on Plasma Physics and Controlled fusion, Zvenigorod, Rusya, 10 - 14 Şubat 2014, ss.178
- XVI. **Two-dimensional hybrid model for a glow discharge: comparison with fluid and kinetic (particle) models, reliability and accuracy**
EYLENCEOĞLU E., RAFATOV İ.
16th Russian Youth Conference on Physics and Astronomy (PhysicA.SPb), St Petersburg, Rusya, 23 - 24 Ekim 2013, cilt.572
- XVII. **PIC MCC method for numerical simulation of RF glow discharges Effect of super particle weighting and parallelization**
Erden E., RAFATOV İ.
4th Workshop on Radiofrequency Discharges, Presqu'île de Giens, Fransa, 29 - 31 Mayıs 2013
- XVIII. **Hybrid modelling of a dc glow discharge with account of nonlocal ionization by fast electrons**
RAFATOV İ., Bogdanov E., Kudryavtsev A.
VII International Conference Plasma Physics and Plasma Technology (PPPT-7), Minsk, Belarus, 17 - 21 Eylül 2012, cilt.1, ss.14-17
- XIX. **On the numerical modelling of a dc driven glow discharge plasma**
RAFATOV İ., Bogdanov E., Kudryavtsev A.
30th International Conference on Phenomena in Ionized Gases (ICPIG), Belfast, Birleşik Krallık, 28 Ağustos - 02 Eylül 2011, ss.1-4
- XX. **Fluid model of dc glow discharge with nonlocal ionization source term**
RAFATOV İ., BOGDANOV E. A. , KUDRYAVTSEV A. A.
12th European Plasma Conference on High-Tech Plasma Processes (HTPP), Bologna, İtalya, 24 - 29 Haziran 2012, cilt.406

Bilimsel Dergilerdeki Faaliyetler

Anadolu Üniversitesi Bilim ve Teknoloji Dergisi: B-Teorik Bilimler, Editörler Kurulu Üyesi, 2019 - Devam Ediyor
ANADOLU UNIVERSITY JOURNAL OF SCIENCE AND TECHNOLOGY - A Applied Sciences and Engineering, Editörler Kurulu Üyesi, 2019 - Devam Ediyor

Atıflar

Toplam Atıf Sayısı (WOS):307

h-indeksi (WOS):9