

## رزومه



### اطلاعات فردی

نام: مجتبی

نام خانوادگی: هاشم زاده

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### سوابق تحصیلی

کارشناسی: فیزیک هسته ای دانشگاه کاشان (1384)

کارشناسی ارشد: فوتونیک دانشگاه شهید بهشتی (1388)

عنوان پایان نامه: بررسی اثر نیروی پاندروموتیو اوماج الکترومغناطیسی فرکانس بالا بر روی پلاسمای چگال

استاد راهنما: علیرضا نیکنام

استاد مشاور: بابک شکری

دکتری: فوتونیک دانشگاه شهید بهشتی (1392)

عنوان رساله: شبیه سازی ناپایداری بونمن در پلاسماهای حامل جریان با استفاده از روش ذره در جعبه

استاد راهنما: علیرضا نیکنام

## تدریس:

فیزیک 1 و 2، ریاضی - فیزیک، لیزر، مبانی کامپیوتر، محاسبات عددی، پلاسما

## زمینه های تحقیقاتی

بررسی امواج الکترومغناطیسی فرکانس بالا با پلاسما  
ناپایداری های پلاسمایی  
برهمکنش امواج میکروویو توان بالا با پلاسما

## تجارب تحقیقاتی

سیستم‌ها و فرآیندهای کاشت یونی  
بررسی انواع شبیه سازی های مختلف در پلاسما  
استخراج یون سنگین از جریان گاز توام با جرم  
باردار شدن سفینه فضایی  
گرمایش فرکانس رادیویی

## مهارت‌ها

توانایی در مهارت‌های کامپیوتری  
توانایی در زبان انگلیسی (مدرک زبان: MSRT - 55)  
گذراندن دوره آموزشی کارآفرینی  
آشنایی با نرم افزارهای Origin و fortran, matlab, maple

## لیست مقالات کنفرانسی

1- A. R. Niknam, M. Hashemzadeh, B. Shokri, Investigation of Nonlinear Structure of Electromagnetic Waves Propagation in Underdense Plasmas in Relativistic Regime, 15<sup>th</sup>

Iranian Conference on Optics and Photonics and 1<sup>th</sup> Iranian Conference on Photonics Engineering University of Isfahan, Iran (January 27-29, 2009).

2- A. R. Niknam, M. Hashemzadeh, M. M. Montazeri, Numerical investigation of ponderomotive force effect in an underdense plasma with a linear density profile, 21<sup>th</sup> International Conference on the Numerical Simulation of Plasmas (ICNSP 2009), Lisbon, Portugal, (October 6-9, 2009).

3- A. R. Niknam, M. Hashemzadeh, M. M. Montazeri, Investigation of the effect of ponderomotive force of electromagnetic waves in underdense plasmas with exponential density profile, 16<sup>th</sup> Iranian Conference on Optics and Photonics and 2<sup>th</sup> Iranian Conference on Photonics Engineering University of Yazd, Iran (January 26-28, 2010).

4- M. Hashemzadeh, Etehadi .M, A.R. Niknam, and B. Shokri, Nonlinear Interaction of the High-Frequency Electromagnetic Waves with Dense Collisional Plasmas, 11th Iranian Conference on physics University of Hamedan (September 11-13, 2010).

5- M. Hashemzadeh, A. R. Niknam, and B. Bokaei, Propagation of the high-frequency electromagnetic waves in collisional inhomogeneous plasma with parabolic density profile, 17th Iranian Conference on Optics and Photonics and 3th Iranian Conference on Photonics Engineering University of Mahan, Kerman, Iran (January 25-27, 2011).

6- M. Menati, A. R. Niknam, and M. Hashemzadeh, Propagation and absorption of the electromagnetic waves in surface wave plasma sources using FDTD, 17th Iranian Conference on Optics and Photonics and 3th Iranian Conference on Photonics Engineering University of Mahan, Kerman, Iran (January 25-27, 2011).

7- M. Hashemzadeh, A. R. Niknam, and B. Bokaei, Investigation of the propagation of high-frequency electromagnetic waves in inhomogeneous plasmas in relativistic regime, 18th Iranian Conference on Optics and Photonics and 4th Iranian Conference on Photonics Engineering University of Tabriz, Tabriz, Iran, (7-9 Februray, 2012).

8- M. Hashemzadeh, A. R. Niknam, Investigation of density steepening in electron-positron two stream instability, 1th Iranian Conference on plasma engineering and physics, Shahid Beheshti University, Tehran, Iran, (22,23 May, 2013).

9- B. Mohammadhosseini, M. Hashemzade, S. Lohrasbi, Investigation of hall effect in filamentation instability in current-carrying plasma, 1th Iranian Conference on plasma engineering and physics, Shahid Beheshti University, Tehran, Iran, (22,23 May, 2013).

10- H. Roozbahani, M. Hashemzadeh, A. R. Niknam, Simulation of Buneman instability in nonextensive current driven plasma using particle in cell method, 1th Iranian Conference on plasma engineering and physics, Shahid Beheshti University, Tehran, Iran, (22,23 May, 2013).

### لیست مقالات در مجلات خارجی

1- A. R. Niknam, M. Hashemzadeh, B. Shokri, Weakly relativistic and ponderomotive effects on the density steepening in the interaction of an intense laser pulse with an underdense plasma, *Phys. Plasmas*, **16**, 033105 (2009).

2- A. R. Niknam, M. Hashemzadeh, B. Shokri, M. R. Rouhani, Rarefaction shock waves and Hugoniot curve in the presence of free and trapped particles, *Phys. Plasmas*, **16**, 122109 (2009).

3- A. R. Niknam, M. Hashemzadeh, M. M. Montazeri, Numerical investigation of ponderomotive force effect in an underdense plasma with a linear density profile, *IEEE Trans. Plasma Sci.*, **38**, 2390 (2010).

4- A. R. Niknam, D. Komaizi, and M. Hashemzadeh, Simulation of low frequency Buneman instability of a current-driven plasma by particle in cell method, *Phys. Plasmas*, **18**, 022301 (2011).

5- A. R. Niknam, A. Aliakbari, S. Majedi, F. Haji Mirzaei, and M. Hashemzadeh, Self-focusing of intense high frequency electromagnetic waves in a collisional magnetoactive plasma, *Phys. Plasmas*, **18**, 112305 (2011).

- 6- A. R. Niknam, M. Menati, M. Hashemzadeh, and M. M. Zahedi, Fundamentals of slot antenna designing for application in surface wave plasma sources, *IEEE Trans. Plasma Sci.*, **40**, 470 (2012).
- 7- M. Hashemzadeh, A. R. Niknam, D. Komaizi, PIC Simulation of Current-Driven Buneman Instability in Presence of Collisional and Thermal Effects, *Contr. Plasma Phys.*, **53**, 580 (2013).
- 8- M. Hashemzadeh, A. R. Niknam, D. Komaizi, PIC simulation of relativistic Buneman instability in a current carrying plasma, *Waves in Random and Complex Media*, **23**, 383 (2013).
- 9- A. R. Niknam, S. Barzegar, and M. Hashemzadeh, Self-focusing and stimulated Brillouin back-scattering of a long intense laser pulse in a finite temperature relativistic plasma, *Phys. Plasmas*, **20**, 122117 (2013).
- 10- A. R. Niknam, M. R. Jafari Milani, B. Bokaei, and M. Hashemzadeh, Weakly relativistic and ponderomotive effects in interaction of intense laser beam with inhomogeneous collisionless and collisional plasmas, *Waves in Random and Complex Media*, **24**, 1 (2014).
- 11- M. Hashemzadeh, A. R. Niknam, B. Bokaei, and M. R. Jafari Milani, Nonlinear steepening of density profile by intense laser radiation in collisional inhomogeneous plasmas, *IEEE Trans. Plasma Sci.* **42**, 1353 (2014).
- 12- A. R. Niknam, H. Roozbahani, M. Hashemzadeh, and D. Komaizi, Particle in cell simulations of Buneman instability of a current-driven plasma with q-nonextensive electron velocity distribution, *Phys. Plasmas*, **21**, 092307 (2014).
- 13- M. Hashemzadeh and A. R. Niknam, Particle in cell simulation of low frequency instability in a current carrying plasma in presence of negative ions, *Phys. Plasmas* **21**, 092309 (2014).
- 14- M. Hashemzadeh, Investigation of plasma density gratings in current carrying plasmas by particle in cell method, *Plasma Phys. Control. Fusion*, **57**, 115002 (2015).
- 15- M. Hashemzadeh, Effect of q-nonextensive parameter and saturation time on electron density steepening in electron-positron-ion plasmas, *Phys. Plasmas*, **22**, 112109 (2015).
- 16- S. Zarrinkamar, H. Hassanabadi and M. Hashemzadeh, On the Klein-Gordon Equation in Gravitational Field of a Massive Point, *Univ Politehnica Bucharest, Sci Bull*, **78**, 259 (2016).
- 17- M. Hashemzadeh, Nonextensive statistics and skin depth of transverse wave in collisional plasma, *Phys. Plasmas*, **23**, 052113 (2016).
- 18- M. Hashemzadeh, Ion-acoustic and Buneman instabilities in collisional plasmas with q-nonextensive distribution, *Phys. A: Stat. Mech. & App.*, **459**, 68 (2016).
- 19- M. Hashemzadeh and A. R. Niknam, Nonlinear space charge dynamics and modulational instability in the interaction of intense laser pulses with electron-positron plasmas, *Phys. Plasmas*, **24**, 062102 (2017).

- 20- M. Hashemzadeh, Self-focusing and defocusing of Gaussian laser beams in collisional inhomogeneous plasmas with linear density and temperature ramps, *Phys. Plasmas*, **25**, 012309 (2018).
- 21- M. Hashemzadeh, S. M. Baki, M. Momeni, and A. R. Niknam, Resonance absorption of intense short laser pulse in near critical inhomogeneous plasma, *Waves in Random and Complex Media* (2018).
- 22- M. Hashemzadeh, Increasing the peaks of non-linear electron density near critical density in terahertz–plasma interaction, *Contrib. Plasma Phys.* (2018).