

حسین اشرفی

استادیار

دانشکده: دانشکده مهندسی مکانیک

گروه: مهندسی مکانیک - طراحی جامدات



- استادیار گروه مکانیک جامدات و طراحی کاربردی دانشکده مهندسی مکانیک دانشگاه کاشان
- دکتری تخصصی مکانیک محاسباتی و طراحی کاربردی از دانشگاه صنعتی خواجه نصیرالدین طوسی
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سوابق تحصیلی

مقطع تحصیلی	سال اخذ مدرک	رشته و گرایش تحصیلی	دانشگاه
دکترای تخصصی		مهندسی مکانیک - طراحی کاربردی	دانشگاه صنعتی خواجه نصیرالدین طوسی
کارشناسی ارشد		مهندسی مکانیک - طراحی کاربردی	دانشگاه شیراز

کارگاه ها

• Finite Element Methods for Engineering Applications	• Engineering Analyzes by ANSYS & Ls-Dyna
• Impact and Damage Mechanics	• Biomechanics and Tissues Engineering
• Modal Testing and Analysis	• Computer Programming with MATLAB
• Contact and Friction Mechanics	• How to Prepare and Publish a Research Paper?

عضویت در هیات تحریریه مجلات علمی و پژوهشی

- "Universal Journal of Biomedical Engineering"
- "Journal of Polymer Science and Engineering"
- "International Journal of Mechanical Sciences"
- "Journal of the Mechanical Behavior of Biomedical Materials"
- "Bioinspired, Biomimetic and Nanobiomaterials"

- "Medical & Biological Engineering & Computing"
- "KSCE Journal of Civil Engineering"
- "Journal of Biomedical Physics and Engineering"
- "Journal of Solid Mechanics"
- "Journal of Applied Mechanics" و ...

عضویت در انجمن های علمی

- عضو بنیاد ملی نخبگان ایران، سازمان پژوهش های علمی و صنعتی و صندوق حمایت از پژوهشگران و فناوران ایران
- عضو انجمن مهندسان مکانیک امریکا (ASME)
- عضو انجمن مکانیک محاسباتی اروپا (ECCOMAS)
- عضو انجمن مهندسان مکانیک ایران (ISME)
- عضو انجمن مهندسی پزشکی ایران (ISBME)
- عضو انجمن پلیمر ایران (IPSTS)
- عضو انجمن رئولوژی ایران

مقالات در همایش ها

1. H Ashrafi, A Boundary Element Creep Analysis of Viscoelastic Functionally Graded Solids, 24th Annual International Conference on Mechanical Engineering-ISME2016, بیزد, 26 4 2016.
2. H Ashrafi, & S Madadi, VISCOELASTIC CONTACT ANALYSIS OF NANOINDENTATION MODELING ON POLYMERIC SOLID FILMS USING AUGMENTED LAGRANGIAN FINITE ELEMENT FORMULATION, 1st International Conference on Rheology (ICOR), Amirkabir University of Technology, 2019/12/17.
3. A. Loghman, H. Ashrafi, S. Saeedi, M. Kholdi, تحلیل ترموالاستیک استوانه جدار ضخیم با دوانتهای بسته ساخته شده از مواد مدرج تابعی با روش روش حل عددی مربع سازی دیفرانسیلی (25th Annual DQM), International Conference of Iranian Society of Mechanical Engineers, Tehran, 2017.
4. A. Shaker, M. Khodadad, H. Ashrafi, Combination of the simple BEM and ICA to detect a cavity inside a FG domain, 26th Annual International Conference of Iranian Society of Mechanical Engineers, Semnan, 2018/04/24.
5. A. Shaker, M. Khodadad, H. Ashrafi, حل معکوس المان مرزی مسئله انتقال حرارت جهت تعیین ضرایب هدایت حرارتی یک صفحه مدرج تابعی, 26th Annual International Conference of Iranian Society of Mechanical Engineers, Semnan, 2018/04/24.
6. H Ashrafi, تحلیل برهم کنش های تماسی در سازه های مدرج تابعی ویسکوالاستیک با استفاده از اجزای محدود مدرج, 14th International Conference of Iranian Aerospace Society, تهران, 2015, 3 3.
7. Keshavarz R, Bashardoust S, Mir SM, Ashrafi H, The Role of Scapular Kinematics in Patients with Different Shoulder Musculoskeletal Disorders; A Systematic Review Approach, چهارمین کنگره سالانه انجمن جراحان ارتوپدی ایران, تهران, 2016, 26 9.
8. A. Shaker, M. Khodadad, H. Ashrafi, استفاده از روش المان مرزی در تحلیل انتقال حرارت در صفحات مدرج تابعی در حالت های خاص, 3rd Iranian Conference on Heat and Mass Transfer, ICHMT2017, Babol, 2017/11/22, Noshirvani University of Technology.
9. S Madadi, H Ashrafi, Tabatabaei F, تحلیل دینامیکی نوسانات اندام فوقانی در حین راه رفتن بر سینتیک و سینماتیک ستون فقرات کمری, 20th National Seminar on Specialized Physical Therapy of the Spine, University of Social Welfare and Rehabilitation Sciences, 2019.
10. S Madadi و H Ashrafi, وابستگی ضریب پیواسون فوم الاستومر ویسکوالاستیک به فرکانس, 3rd Iranian conference on Rheology, Amirkabir University of Technology, July 2018.

۱۱. H Ashrafi و S Madadi، ارائه یک مدل تماسی جدید برای فروروی در لایه های ویسکوالاستیک ماکسولی، ۳rd Iranian conference on Rheology، Amirkabir University of Technology، July ۲۰۱۸.
۱۲. H Ashrafi ,& O Bashari ,A Finite Element Approach for Modeling of Nano-Beams Incorporated with Nonlocal Elasticity ,6th International Conference on Nanoscience and Nanotechnology ((ICNN 2016), کرج, 26 10 2016.
۱۳. H Ashrafi ,& O Bashari ,A Nanoindentation Identification of Time-Dependent Relaxation and Creep Moduli for Periodontal Ligaments ,6th International congress on nanoscience and nanotechnology, کرج, 26 10 2016.
۱۴. H Ashrafi ,& R Keshavarz ,A 3-D Finite Element Biodynamic Analysis of the Human Lumbar Spine ,1st National Congress on Clinical Movement ,Ahvaz Jondishapur University of Medical Sciences ,2016.
۱۵. H Ashrafi و M Kholdi ,بررسی رفتار ترمومکانیکی رویه های پلیمری حافظه دار، ۱۶th National Seminar on Surface Engineering، Tehran، ۲۰۱۶.
۱۶. H Ashrafi , A Seifallahi , R. Mahdiani ,مدل سازی ساختاری و تحلیل رفتار دینامیکی ماده یک ژلاتین بالستیک، ۴th International Conference on Iranian Society of Material Engineering & Metallurgy، Tehran، ۲۰۱۵.
۱۷. H Ashrafi ,& M Farid ,Nonlinear Finite Element Modeling of Nanoindentation to Simulate Contact Behavior in Film-Substrate Interface ,2nd International Congress on Nanoscience and Nanotechnology, تبریز, 28 10 2008.
۱۸. H Ashrafi و M Shariyat ,تحلیل تماس اصطکاکی فروروی یک فرورونده صلب در یک لایه ی نازک پلیمری دارای ساختار هدفمند (۲۰۱۰، Isfahan، ۱۱th National Seminar on Surface Engineering، FGMs).
۱۹. Mofidian SMM, Atefi GA, Ashrafi H ,Application of Lattice BOLTZMANN Method to Simulate Blood Flow in Carotid Artery ,1st MEFOMP International Conference of Medical Physics ,Shiraz University of Medical Sciences (SUMS) ,November 2-4, 2011.
۲۰. H Ashrafi ,& M Shariyat ,Thermoviscoelastic Analysis of Three-Dimensional Orthotropic Solid Polymers Using a General Finite Element Formulation ,21st Annual International Conference on Mechanical Engineering (ISME2013) ,KNT University of Technology, Tehran ,2013 5 7.
۲۱. H Ashrafi ,& M Shariyat ,Material Nonhomogeneity Modeling of Functionally Graded Viscoelastic Materials Using Boundary and Finite Element Techniques ,The 3rd International Conference on Composites: Characterization, Fabrication and Application (CCFA-3) ,Tehran ,2012 12 18.
۲۲. H Ashrafi , H Keshmiri , M.R. Bahadori ,Numerical Analysis of Thermoviscoelastic Behavior of Post-Restored Teeth using a Generalized Approach ,IEEE 19th Iranian conference on Biomedical Engineering ,Amirkabir University of Technology ,2012.
۲۳. Bandband, H; M Shariyat; H Ashrafi ,Reduction of Human Head Injury By Designing an Energy Absorption On Helmet from the Use of Aluminum Honeycomb Panels ,IEEE 19th Iranian conference on Biomedical Engineering ,Amirkabir University of Technology ,2012.
۲۴. H Ashrafi , H Keshmiri , M.R. Bahadori ,Numerical Contact Analysis of Periodontal Ligament under Tooth Mobility by Considering Its Viscoelastic Constitutive Behavior ,IEEE 19th Iranian conference on Biomedical Engineering ,pp. ICBME19_077 ,Amirkabir University of Technology ,2012.
۲۵. M Shariyat , H Ashrafi , H BandBand ,Modelling Of Energy Absorber on Helmet by Using Polymeric Foams ,10th International Seminar on Polymer Science and Technology ,pp. ISPST10_239 ,Iran Polymer and Petrochemical Institute ,2012.
۲۶. M. Shariyat ; H. BandBand ; H. Ashrafi ,Modeling and Analysis of Vibration Response in Human Skull System with Time-Dependent Viscoelastic Nature ,IEEE 18th Iranian Conference on Biomedical Engineering ,تهران , 14 12 2011.
۲۷. H Ashrafi , SMR Khalili , M Shariyat ,Biomedical Applications of Smart Materials in Dentistry ,1st MEFOMP International Conference of Medical Physics ,Shiraz ,2011 10 26.
۲۸. H Ashrafi , M Shariyat , SMM Mofidian ,Thermoelastic Analysis of Post-Restored Teeth .

- Using a Generalized Mathematical Approach ,1st MEFOMP International Conference of Medical Physics ,pp. 43 ,Shiraz University of Medical Sciences ,2011
- Haghighatpour M, Mahdipour A, Vahedi KH, Ashrafi H ,Numerical Simulation of Penetration of Rib Cortical Bone Struck By Projectiles with Different Nose Shapes ,1st MEFOMP International Conference of Medical Physics ,pp. 83 ,Shiraz University of Medical Sciences ,2011
- H Ashrafi ,& M Shariyat ,A Viscoelastic Nanoindentation Modeling On Polymeric Solid Films by an Augmented Lagrangian Contact Analysis ,3rd International Congress on Nanoscience and Nanotechnology – ICNN ,Shiraz ,2010 11 9
- H Ashrafi ,& M Shariyat ,A Nanoindentation Modeling of Viscoelastic Creep and Relaxation Behaviors of Ligaments, mechanical characteristics of biological tissues ,IEEE 17th Iranian Conference on Biomedical Engineering ,اصفهان , 3 11 2010
- H Ashrafi ,& M Shariyat ,A mathematical approach for describing the time-dependent Poisson's ratio of viscoelastic ligaments mechanical characteristics of biological tissues ,IEEE 17th Iranian Conference on Biomedical Engineering ,اصفهان , 3 11 2010
- H Ashrafi ,& M Farid ,A Meshless Local Boundary Integral Equation Approach Applied to Functionally Graded Viscoelastic Solid Polymers ,18th Annual International Conference on Mechanical Engineering ,pp. ISME18_574 ,Sharif University of Technology, Tehran ,2010
- H Ashrafi ,& M Farid ,An Analytical Modeling for Linearly Viscoelastic Functionally Graded Solids by Considering Separable Relaxation Functions in Space and Time ,17th Annual International Conference on Mechanical Engineering ,The Iranian Society of Mechanical Engineers (ISME) ,2009 5 19
- H Ashrafi ,& M Farid ,Measurement of Mechanical Properties of Bones and Teeth Using Nanoindentation ,IEEE 16th Iranian Conference on Biomedical Engineering ,Tehran ,2009 12 30
- H Ashrafi ,& M Farid ,The Viscoelastic Boundary Integral Equation Analysis of Infinite Polymeric Plates Using an Alternative Time Marching Treatment ,18th Biennial International Conference on Computer Methods in Mechanics ,University of Ziolona Gora, Poland ,2009
- H Ashrafi ,An Augmented Lagrangian Treatment for Viscoelastic Contact Formulation ,2009 Joint ASCE – ASME – SES Conference on Mechanics and Materials ,pp. 787 ,Blacksburg, VA, USA ,2009
- H Ashrafi ,& M Farid ,A Finite Element Formulation for Thermoviscoelastic Analysis of Polymeric Thin Solid Films ,10th Iranian Seminar on Heat treatment and Surface Engineering ,pp. ISSE10_064 ,Iranian Society of Surface Science & Technology ,2009
- H Ashrafi ,& M Farid ,Boundary Element Formulation for General Viscoelastic Solids ,7th Annual International Conference of Iranian Aerospace Society – Aero2008 ,Sharif University of Technology ,2008 2 19
- H Ashrafi ,& M Farid ,Modeling of the Contact Problems of Human Body/Seat Interface in a Vibration Area ,1st International Conference on Ergonomics, Iranian Society of Ergonomics ,Tehran ,2008

مقالات در نشریات

- M Kholdi, A Loghman, H Ashrafi, M Arefi, Analysis of thick-walled spherical shells subjected to external pressure: Elastoplastic and residual stress analysis, P I MECH ENG L-J MAT, Vol. 234, pp. 186-197, 2020
- M Lotfi, H Ashrafi, S Amini, Characterization of various coatings on wear suppression in turning of Inconel 625: A three-dimensional numerical simulation, P I MECH ENG J-J ENG, Vol. 231, pp. 734-744, 2017
- R Teimouri, S Amini, H Ashrafi, An analytical model of burnishing forces using slab method, P I MECH ENG E-J PRO, Vol. 233, pp. 630-642, 2019
- Shariyat, M. Ashrafi H, A Three-Dimensional Comparative Study of the Isoparametric Graded.

- Boundary and Finite Element Methods for Nonhomogeneous FGM Plates with Eccentric .Cutouts, *International Journal of Computational Methods*, Vol. 14, pp. 1-28, 2017
- Ashrafi, H. Shariyat, M, A Visco-Hyperelastic Model for Prediction of The Brain Tissue .5
Response and The Traumatic Brain Injuries, *Archives of Trauma Research*, Vol. 6, pp. 41-48, 2017
- Keshavarz R, Bashardoust S, Mir SM, Ashrafi H, The Role of Scapular Kinematics in Patients .6
with Different Shoulder Musculoskeletal Disorders: A Systematic Review Approach, *J Bodyw Mov
Ther.*, Vol. 21, pp. 386-400, 2017
- H. Ashrafi, M. Shariyat, A mathematical boundary integral equation for analysis of the .7
heterogeneous media, using the functionally graded elements, *International Journal of
Computational Materials Science and Engineering*, Vol. 4, pp. 1-27, 2015
- M Lotfi, H Ashrafi, S Amini, Characterization of Various Coatings on Wear Suppression in .8
Turning of Inconel 625: A 3D Numerical Simulation, *P I MECH ENG J-J ENG*, Vol. 231, pp.
.734-744, 2017
- R Keshavarz; H Shakeri; A.M Arab; H Ashrafi, Scapular Position and Orientation during .9
Abduction, Flexion and Scapular Plane elevation Phase, *Iranian Rehabilitation Journal*, Vol. 12, pp.
.22-30, 2014
- Teimouri, R. Ashrafi, H, Optimization of hydroforming process for deep drawing of AA7075. .10
using finite element simulation and response surface methodology, *T INDIAN I METALS*, Vol.
.70, pp. 2265–2275, 2017
- Ashrafi, H. Shariyat, M. Asemi, K., A time-domain boundary element method for quasistatic .11
thermoviscoelastic behavior modeling of the functionally graded materials, *International Journal
of Mechanics and Materials in Design*, Vol. 9, pp. 295–307, 2013
- Ashrafi, H. Shariyat, M. Asemi, K., A three-dimensional boundary element stress and bending .12
analysis of transversely/longitudinally graded plates with circular cutouts under biaxial
loading, *European Journal of Mechanics - A/Solids*, Vol. 42, pp. 344-357, 2013
- Ashrafi, H. Shariyat, M, A Nano-indentation Identification Technique for Viscoelastic .13
Constitutive Characteristics of Periodontal Ligaments, *J Biomed Phys Eng*, Vol. 6, pp.
.109-118, 2016
- H. Ashrafi, M. Shariyat, S.M.R. Khalili, A Boundary Element Formulation for the Heterogeneous .14
Functionally Graded Viscoelastic Structures, *Applied Mathematics and Computation*, Vol. 225, pp.
.246-262, 2013
- A Shaker, M. Khodadad, H Ashrafi, Analysis of Heat Conduction in a Quadratic Functionally .15
Graded Plane by Boundary Element Method Based on the Variable Transmission
Approach, *Journal of Aerospace Mechanics*, Vol. 15, pp. 77-89, 2020
- M Lotfi, S Amini, H Ashrafi, Theoretical and numerical modeling of tool–chip friction in .16
ultrasonic-assisted turning, *P I MECH ENG E-J PRO*, Vol. 233, pp. 824-838, 2019
- K. Asemi, H. Ashrafi, M. Shariyat, Three-dimensional stress and free vibration analyses of .17
functionally graded plates with circular holes by the use of the graded finite element
method, *Journal of Applied Mechanics and Technical Physics*, Vol. 57, pp. 690–700, 2016
- H. Ashrafi, M. Shariyat, A numerical boundary integral equation analysis for standard linear .18
viscoelastic media made of functionally graded materials, *International Journal of Mechanical
and Materials Engineering*, Vol. 9, 2014
- Shaker, S. Khodadad, M. Ashrafi, H. Identification of the heat conduction coefficients of a .19
functionally graded material with inverse application of the boundary elements method and
using imperialist competitive algorithm. *Modares Mechanical Engineering*
شماره صفحات ۱۷، مجلد ۱۳، ۲۰۱۷-۱۱۹
- H. Ashrafi , M. Mahzoon , M. Shariyat, A New Mathematical Modeling of Contact Treatment .20
between an Orthotropic Material and a Rigid Indenter, *Iranian Journal of Materials Science and
Engineering*, Vol. 9, pp. 29-41, 2012
- H. Ashrafi, K. Asemi, M. Shariyat, M. Salehi, Three-dimensional static and dynamic analysis of .21

- functionally graded elliptical plates, employing graded finite elements, *Acta Mechanica*, Vol. 224, pp. 1849–1864, 2013.
22. H. Ashrafi M. Farid, A Mathematical Boundary Integral Equation Analysis of Standard Viscoelastic Solid Polymers, *Computational Mathematics and Modeling*, Vol. 20, pp. 397-415, 2009.
23. Ashrafi, H. Shariyat, M. Modeling of viscoelastic properties for polymeric thin solid layers using a contact nanoindentation approach. *Iranian Journal of Surface Science and Engineering*, مجلد ۸، شماره صفحات ۱۷-۲۰۱۲، ۲۶.
24. Shariyat, M. Ashrafi H. Bandband, H. Brain Tissue Response Analysis Based on Several Hyperelastic Models, for Traumatic Brain Injury Assessment, *Universal Journal of Biomedical Engineering*, Vol. 4, pp. 11 – 26, 2016.
25. H. Ashrafi, M. Shariyat, A Mathematical Approach for Describing Time-Dependent Poisson's Ratios of Periodontal Ligaments, *Journal of Biomedical Physics and Engineering*, Vol. 2, 2012.
26. سپیده رشدی رحمان مهدیانی علیرضا مصطفوی مرتضی رزاقی حسین اشرفی، شبیه‌سازی اثر دینامیک و نوبز جریان گاز فراصوت تراکم‌پذیر حین خروج از لوله، *AEROSPACE KNOWLEDGE AND TECHNOLOGY*, مجلد ۷، شماره صفحات ۲۳-۱۳۹۷، ۳۴.
27. لقمان ، اشرفی ، زمانی نیا ، خلدی، تحلیل و مقایسه تسلیم و توزیع تنش در سازه های استوانه ای جدار ضخیم تحت فشار داخل و خارج با در نظر گرفتن تاثیر ضخامت، ۲۰۱۷. *Journal of Science and Engineering Elites*.
28. S. Roshdi, M. Razaghi, A. Seifollahi, H. Ashrafi. تحلیل عددی جریان مافوق صوت روی یک پرتابه ضد رزه با سابوت، *Fluid Mechanics and Aerodynamics Journal*، مجلد ۳، شماره صفحات ۴۵-۲۰۱۵، ۵۶.
29. H. Ashrafi, M. Farid, A Computational Matrix Inversion Approach for Analysis of Contact Problems between any Rigid Nano-indenter and Viscoelastic Bodies. *Aerospace Mechanics Journal*، مجلد ۹، شماره صفحات ۹۷-۲۰۱۰، ۱۰۸.
30. H. Ashrafi, M. Farid and M. Kasraei, An augmented lagrangian finite element approach for the tribological analysis of frictional contact problems in viscoelastic systems. *Iranian Journal of Surface Science and Engineering*، مجلد ۹، شماره صفحات ۹۷-۲۰۱۰، ۱۰۸.
31. H. Ashrafi, M. Farid, A Finite Element Formulation of Contact Problems for Viscoelastic Structures, Based on the Generalized Maxwell Relaxation Model. *Aerospace Mechanics Journal*، مجلد ۵، شماره صفحات ۱۱-۲۰۰۹، ۲۱.
32. A Ghorbanpour Arani, M Emdadi, H Ashrafi, M Mohammadimehr, Analysis of viscoelastic functionally graded sandwich plates with CNT reinforced composite facesheets on viscoelastic foundation, *Journal of Solid Mechanics*, Vol. 11, pp. 690-706, 2019.
33. R Keshavarz; S Bashardoust; S.M Mir; H Ashrafi, Investigation of Results of Scapular Assistant Test in Patients with Shoulder Impingement Syndrome and Rotator Cuff Tear: A Clinical Pilot Study, *Journal of Paramedical Science and Rehabilitation*, Vol. 6, pp. 26-38, 2017.
34. H. Ashrafi, M. Shariyat, A Numerical Lagrangian Approach for Analysis of Contact Viscoelastic Problems, *Computational Mathematics and Modeling*, Vol. 25, pp. 416–422, 2014.
35. H. Ashrafi, H. Keshmiri, M.R. Bahadori, M. Shariyat, An FEM Approach for Three-Dimensional Thermoviscoelastic Stress Analysis of Orthotropic Cylinders Made of Polymers, *Advanced Materials Research*, Vol. 685, pp. 295-299, 2013.
36. H. Ashrafi, M.R. Bahadori, H. Keshmiri, M. Shariyat, Boundary Integral Equation Analysis of an Inhomogeneous Medium Made of Functionally Graded Materials, *Advanced Materials Research*, Vol. 685, pp. 285-289, 2013.
37. H. Ashrafi, K. Asemi, M. Shariyat, M. Salehi, Two-dimensional modeling of heterogeneous structures using graded finite element and boundary element methods, *MECCANICA*, Vol. 48, pp. 663–680, 2013.
38. K. Asemi, M. Shariyat, M. Salehi, H. Ashrafi, A full compatible three-dimensional elasticity element for buckling analysis of FGM rectangular plates subjected to various combinations of biaxial normal and shear loads, *Finite Elements in Analysis and Design*, Vol. 74, pp. 9-21, 2013.
39. H. Ashrafi, M.R. Bahadori, M. Shariyat, Modeling of Viscoelastic Solid Polymers Using a Boundary Element Formulation with Considering a Body Load, *Advanced Materials Research*, Vol.

.463,pp. 499-504,2012

Ashrafi, H. Shariyat, M, Numerical Analysis of Contact Problems with Friction on Nano-indentation by a Modified Augmented Lagrangian Optimization Approach, Aerospace Mechanics Journal, Vol. 8, pp. 1-12, 2012

H. Ashrafi, M.R. Bahadori, M. Shariyat, Two-Dimensional Modeling of Functionally Graded Viscoelastic Materials Using a Boundary Element Approach, Advanced Materials Research, Vol. 463, pp. 570-574, 2012

H. Ashrafi, M. Farid M. Kasraei, A new numerical approach for the contact analysis between a spherical nanoindenter on the surface of viscoelastic half-space, Iranian Journal of Surface Science and Engineering, Vol. 6, pp. 1-10, 2011

H. Ashrafi, M. Farid, A GENERAL BOUNDARY ELEMENT FORMULATION FOR THE ANALYSIS OF VISCOELASTIC PROBLEMS, IJE TRANSACTIONS A: Basics, Vol. 23, pp. 153-168, 2010