

CURRICULUM VITAE

PERSONAL INFORMATION

Name **KOSTINAKIS G. KONSTANTINOS**
Address **G. PASALIDI 19, 54453, THESSALONIKI, GREECE**
Tel **Cellular: +30 6945 349 502**
Email **kkostina@civil.auth.gr**
Nationality **Greek**

EDUCATION AND TRAINING

- Date 2005 - 2011
Name and type of the organization providing education/training Laboratory of Structural Analysis and Dynamics of Structures, Department of Civil Engineering, Faculty of Engineering, Aristotle University of Thessaloniki (A.U.Th)
Title of qualification awarded Doctorate (Ph.D.) in Civil Engineering (Grade: Excellent)
- Date 2003 - 2004
Name and type of the organization providing education/training Postgraduate Studies in "Earthquake Resistant Design of Structures", Department of Civil Engineering, Faculty of Engineering, Aristotle University of Thessaloniki (A.U.Th)
Title of qualification awarded Master of Science (M.Sc.) in Earthquake Resistant Design of Structures
- Date 1998 - 2003
Name and type of the organization providing education/training Department of Civil Engineering, Faculty of Engineering, Aristotle University of Thessaloniki (A.U.Th)
Title of qualification awarded Diploma in Civil Engineering (5-year course) (Grade: 8.84 / 10)

**ACADEMIC ACTIVITIES -
TEACHING EXPERIENCE**

- Duration 2018 - today
Institution Department of Civil Engineering, Aristotle University of Thessaloniki (A.U.Th)

- Duration 2011 - 2012
Institution Department of Mathematical, Physical and Computational Sciences, Aristotle University of Thessaloniki (A.U.Th)
Position Lecturer

- Duration 2009 - 2010
Institution Department of Civil Engineering, Faculty of Applied Technology, Technological Educational Institute of Serres
Position Laboratory Collaborator

- Duration 2008 - 2009
Institution Department of Civil Engineering, Faculty of Applied Technology, Technological Educational Institute of Serres
Position Laboratory Collaborator

- Duration 2007 - 2008
Institution Department of Civil Engineering, Faculty of Applied Technology, Technological Educational Institute of Serres
Position Laboratory Collaborator

- Duration 2006 - 2011
Institution Laboratory of Structural Analysis and Dynamics of Structures, Department of Civil Engineering, Aristotle University of Thessaloniki (A.U.Th)
Position Teaching Assistant in Undergraduate and Postgraduate Courses

**SCIENTIFIC AND
PROFESSIONAL
EXPERIENCE – RESEARCH
ACTIVITIES**

- Duration 22/02/2010-10/03/2010

Title of the Research Project "Applications of multimedia in the education of Civil Engineers."

Position Research Assistant

- Duration 01/01/2010-30/04/2010
04/05/2010-31/08/2010

Title of the Research Project "Investigation of Methods for Seismic Strengthening of the School of Rural and Surveying Engineering (Aristotle University of Thessaloniki)."

Position Research Assistant

- Duration 01/07/2008-31/12/2008

Title of the Research Project "Evaluation of seismic response of Magnesia Prefecture buildings and proposal of rehabilitation measures."

Position Research Assistant

- Duration 01/12/2007-21/05/2008

Title of the Research Project "Preparation of scientific-technical report for concrete reinforcing steel."

Position Research Assistant

- Duration 07/05/2007-30/04/2008
01/06/2008-30/06/2008

Title of the Research Project "1st – Phase Pre – Seismic Evaluation of School Buildings which were Designed and Constructed without Seismic Protection in Prefectures of Ioannina, Kastoria and Florina."

Position Research Assistant

• Duration	01/06/2007-30/06/2007
Title of the Research Project	"Earthquake Resistant Design of Structures."
Position	Research Assistant
• Duration	01/09/2006-31/08/2007 01/03/2008-31/03/2008 01/01/2009-31/12/2009
Title of the Research Project	"Relocation and upgrading of existing rooms of the Department of Civil Engineering (A.U.Th.)."
Position	Research Assistant
• Duration	01/01/06-31/01/06 01/03/06-30/04/06
Title of the Research Project	"1 st – Phase Pre – Seismic Evaluation of School Buildings which were Designed and Constructed without Seismic Protection in Prefectures of Pella, Kozani, Pieria, Grevena."
Position	Research Assistant
• Duration	24/06/2005-30/09/2005
Title of the Research Project	"1 st – Phase Pre – Seismic Evaluation of School Buildings which were Designed and Constructed without Seismic Protection in Prefectures of Chalkidiki, Kilkis, Imathia."
Position	Research Assistant

MOTHER TONGUE **GREEK**
FOREIGN LANGUAGES

ENGLISH

Reading	Excellent (Level C2)
Writing	Excellent (Level C2)
Speech	Excellent (Level C2)
Certificates	2000: Certificate of Proficiency in English (University of Cambridge) 2000: Certificate of Proficiency in English (The University of Michigan)

GERMAN

Reading	Very Good (Level B2)
Writing	Very Good (Level B2)
Speech	Very Good (Level B2)
Certificates	2002: Zentrale Mittelstufenprüfung (Goethe - Institut)

TECHNICAL SKILLS AND ABILITIES

Personal Computer Handling

- Excellent use of operating systems (Microsoft Windows)
- Excellent use of office programs (Word, Excel, Access, PowerPoint, et.c.) and drawing programs (Autocad, Photoshop)
- Excellent use of structural analysis and design software (SAP 2000, Seismosignal, XTRACT, ADINA, RUAUMOKO)
- Use of programming languages (Python, Visual Basic, Fortran, C++)

REFERRED PAPERS IN INTERNATIONAL SCIENTIFIC JOURNALS

- 3.30 K. Kostinakis, K. Morfidis, K. Demertzis and L. Iliadis (2023) "Classification of buildings' potential for seismic damage using a machine learning model with auto hyperparameter tuning", *Engineering Structures*, 290: 116359.
- 3.29 V. Vasileiadis, K. Kostinakis and A. Athanatopoulou (2023) "Story-wise assessment of seismic behavior and fragility analysis of R/C frames considering the effect of masonry infills", *Soil Dynamics and Earthquake Engineering*, 165: 107714.
- 3.28 K. Demertzis, K. Kostinakis, K. Morfidis and L. Iliadis (2023) "An interpretable machine learning method for the prediction of R/C buildings' seismic response", *Journal of Building Engineering*, 63(A): 105493.
- 3.27 K. Morfidis and K. Kostinakis (2022) "Special Issue on Application of Artificial Neural Networks for Seismic Design and Assessment", *Applied Sciences (Switzerland)*, 12(12): 6192.
- 3.26 K. Morfidis and K. Kostinakis (2022) "Rapid Prediction of Seismic Incident Angle's Influence on the Damage Level of RC Buildings Using Artificial Neural Networks", *Applied Sciences (Switzerland)*, 12(3): 1055.
- 3.25 A. Papatotiriou, A. Athanatopoulou and K. Kostinakis (2022) "Spectral Acceleration as an Efficient Seismic Damage Measure for Bare and Masonry Infilled R/C Frames", *Journal of Earthquake Engineering*, 26(9): 4580-4612.
- 3.24 A. Papatotiriou, A. Athanatopoulou and K. Kostinakis (2021) "Parametric study of the masonry infills' effect on the seismic performance of R/C frames based on the use of different damage measures ", *Engineering Structures*, 241: 112326.
- 3.23 A. Tsourekas, A. Athanatopoulou and K. Kostinakis (2021) "Maximum mean square response and critical orientation under bi-directional seismic excitation", *Engineering Structures*, 233: 111881.
- 3.22 A. Papatotiriou, A. Athanatopoulou and K. Kostinakis (2020) "Investigation on engineering demand parameters describing the seismic damage of masonry infilled R/C frames", *Bulletin of Earthquake Engineering*, 18(13): 6075-6115.
- 3.21 K. Kostinakis and K. Morfidis (2020) "Optimization of the seismic performance of masonry infilled R/C buildings at the stage of design using artificial neural networks", *Structural Engineering and Mechanics*, 3(10): 295-309.
- 3.20 K. Kostinakis and A. Athanatopoulou (2020) "Effects of in-plan irregularities caused by masonry infills on the seismic behavior of R/C buildings", *Soil Dynamics and Earthquake Engineering*, 129: 105598.
- 3.19 K. Morfidis and K. Kostinakis (2019) "Comparative Evaluation of MFP and RBF Neural Networks' Ability for Instant Estimation of r/c Buildings' Seismic Damage Level", *Engineering Structures*, 197: 109436.
- 3.18 K. Morfidis and K. Kostinakis (2018) "Approaches to the rapid seismic damage prediction of r/c buildings using artificial neural networks", *Engineering*

- Structures, 165: 120-141.
- 3.17 K. Kostinakis (2018) "Impact of the masonry infills on the correlation between seismic intensity measures and damage of R/C buildings", *Earthquakes and Structures*, 14(1): 55-71.
- 3.16 K. Kostinakis, I.-K. Fontara and A. Athanatopoulou (2018) "Scalar structure-specific ground motion intensity measures for assessing the seismic performance of structures. A review", *Journal of Earthquake Engineering*, 22(4): 630-665.
- 3.15 K. Kostinakis, G. Manoukas and A. Athanatopoulou (2018) "Influence of Seismic Incident Angle on Response of Symmetric in Plan Buildings", *KSCE Journal of Civil Engineering*, 22(2): 725-735.
- 3.14 D. Sotiriadis, K. Kostinakis and K. Morfidis (2017) "Effects of nonlinear soil-structure-interaction on seismic damage of 3D buildings supported on cohesive and frictional soils", *Bulletin of Earthquake Engineering*, 15(9): 3581-3610.
- 3.13 K. Morfidis and K. Kostinakis (2017) "Seismic parameters' combinations for the optimum prediction of the damage state of R/C buildings using neural networks", *Advances in Engineering Software*, 106: 1-16.
- 3.12 K. Kostinakis and K. Morfidis (2017) "The impact of successive earthquakes on the seismic damage of multistorey 3D R/C buildings", *Earthquakes and Structures*, 12(1): 1-12.
- 3.11 K. Morfidis and K. Kostinakis (2017) "The role of masonry infills on the damage response of R/C buildings subjected to seismic sequences", *Engineering Structures*, 131: 459-476.
- 3.10 K. Kostinakis and A. Athanatopoulou (2016) "Incremental dynamic analysis applied to assessment of structure-specific earthquake IMs in 3D R/C buildings", *Engineering Structures*, 125: 300-312.
- 3.9 I.-K. Fontara, K. Kostinakis, G. Manoukas and A. Athanatopoulou (2015) "Parameters affecting the seismic response of buildings under bi-directional excitation", *Structural Engineering and Mechanics*, 53(5): 957-979.
- 3.8 K. Kostinakis and A. Athanatopoulou (2015) "Evaluation of scalar structure-specific ground motion intensity measures for seismic response prediction of earthquake resistant 3D buildings", *Earthquakes and Structures*, 9(5): 1091-1114.
- 3.7 K. Kostinakis, K. Morfidis, and H. Xenidis (2015) "Damage response of multistorey r/c buildings with different structural systems subjected to seismic motion of arbitrary orientation", *Earthquake Engineering and Structural Dynamics*, 44(12): 1919-1937.
- 3.6 K. Kostinakis, A. Athanatopoulou and K. Morfidis (2015) "Correlation between ground motion intensity measures and seismic damage of 3D R/C buildings", *Engineering Structures*, 82: 151-167.
- 3.5 K.G. Kostinakis, A.M. Athanatopoulou and V.S. Tsiggelis (2013) "Effectiveness of

- percentage combination rules for maximum response calculation within the context of linear time history analysis”, *Engineering Structures*, 56: 36-45.
- 3.4 K.G. Kostinakis, A.M. Athanatopoulou and I.E. Avramidis (2013) “Evaluation of inelastic response of 3D single-story R/C frames under bi-directional excitation using different orientation schemes”, *Bulletin of Earthquake Engineering*, 11(2): 637-661.
- 3.3 Kostinakis K.G., Athanatopoulou A.M. and Avramidis I.E. (2012) “Orientation effects of horizontal seismic components on longitudinal reinforcement in R/C Frame elements”, *Natural Hazards and Earth System Sciences*, 12(1): 1-10.
- 3.2 Kostinakis K.G., Xystrakis F., Theodoropoulos K., Stathis D., Eleftheriadou E. and Matzarakis A. (2011) “Estimation of reference potential evapotranspiration with focus on vegetation science - the EmPEst software”, *Journal of Irrigation & Drainage Engineering*, 137(9): 616-619.
- 3.1 Kostinakis K.G., Athanatopoulou A.M. and Avramidis I.E. (2011) "Sectional forces for seismic design of R/C frames by linear time history analysis and application to 3D single-story buildings", *Soil Dynamics and Earthquake Engineering*, 31(3): 318-333.

REFERRED PAPERS IN INTERNATIONAL SCIENTIFIC CONFERENCES

- 4.30 K. Demertzis, K. Morfidis, K. Kostinakis and L. Iliadis (2023) “The dynamic problem of an elastically supported bema analysis using neural architecture search with automatic differentiation”, *Proceedings of the 9th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN)*, 12-14 June 2023, Athens, Greece, pages: 4972-4986.
- 4.29 K. Bitsiou, K. Kostinakis and A. Athanatopoulou (2022) “Seismic assessment of an existing gravity load-designed R/C building with the aid of the two variations of response spectrum analysis proposed by the Greek Code for Structural Interventions”, *Proceedings of the 3rd European Conference on Earthquake Engineering & Seismology 3ECEES 2022*, 4-9 September 2022, Bucharest, Romania, Page No: 3823.
- 4.28 A. Athanatopoulou and K. Kostinakis (2021) “Inelastic seismic response of multistorey R/C buildings designed on the basis of linear time history analysis”, *Proceedings of the 17th World Conference on Earthquake Engineering 17WCEE 2020*, 27 September 2021 - 2 October 2021, Sendai, Japan, Page No: 2b-0080.
- 4.27 A. Athanatopoulou, A. Papasotiriou and K. Kostinakis (2021) “Spatial and temporal variation in the correlation of seismic response with the spectral acceleration”, *Proceedings of the 17th World Conference on Earthquake Engineering 17WCEE 2020*, 27 September 2021 - 2 October 2021, Sendai, Japan,

Page No: 2c-0118.

- 4.26 K. Morfidis, K. Kostinakis and N. Pneymatikos (2020) "Adequacy of accidental eccentricity in accounting for the effects of the torsional component of earthquakes on the seismic damage", Proceedings of the 11th International Conference on Structural Dynamics EURODYN 2020, 23-26 November 2020, Athens, Greece, Pages: 4639-4650.
- 4.25 A. Krystallis, A. Athanatopoulou and K. Kostinakis (2020) "Use of fluid dampers in order to improve the seismic performance of reinforced concrete buildings with asymmetric plan-view", Proceedings of the 9th European Workshop on the Seismic Behaviour of Irregular and Complex Structures, 15-16 December 2020, Lisbon, Portugal.
- 4.24 K. Kostinakis and A. Athanatopoulou (2020) "Evaluation of the effectiveness of accidental eccentricity in capturing the effects of irregular masonry infills", Proceedings of the 9th European Workshop on the Seismic Behaviour of Irregular and Complex Structures, 15-16 December 2020, Lisbon, Portugal.
- 4.23 K. Morfidis and K. Kostinakis (2019) "Use of artificial neural networks in the R/C buildings' seismic vulnerability assessment: the practical point of view", Proceedings of the 7th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN), 24-26 June 2019, Crete Island, Greece, pages: 5435-5455.
- 4.22 D. Skoulidou, X. Romao, A. Athanatopoulou and K. Kostinakis (2019) "Seismic demand variability OF RC buildings accounting for the number of ground motions and the angle of seismic incidence", Proceedings of the 12th HSTAM International Congress on Mechanics, 22-25 September 2019, Thessaloniki, Greece, Paper vol: 1169.
- 4.21 K. Kostinakis, I-K. Fontara, S. Moschou and A. Athanatopoulou (2018) "Influence Of Complex Site Effects On Seismic Response Of R/C Buildings With Various Masonry Infills' Distributions", Proceedings of the 16th European Conference on Earthquake Engineering (16ECEE), 18-21 June 2018, Thessaloniki, Greece, Paper ID: 10660.
- 4.20 K. Morfidis and K. Kostinakis (2018) "Study of Artificial Neural Networks Based Methods for the Rapid Estimation of R/C Buildings' Seismic Damage", Proceedings of the 16th European Conference on Earthquake Engineering (16ECEE), 18-21 June 2018, Thessaloniki, Greece, Paper ID: 11438.
- 4.19 K. Kostinakis, V. Vasileiadis and A. Athanatopoulou (2018) "Incremental Dynamic Analysis Of R/C Buildings With Various Distributions of Masonry Infills", Proceedings of the 16th European Conference on Earthquake Engineering (16ECEE), 18-21 June 2018, Thessaloniki, Greece, Paper ID: 10631.

- 4.18 D. Sotiriadis, K. Morfidis and K. Kostinakis (2018) "Assessment of 3D Buildings' Seismic Damage Considering Kinematic and Inertial Soil-Structure-Interaction Effects", Proceedings of the 16th European Conference on Earthquake Engineering (16ECEE), 18-21 June 2018, Thessaloniki, Greece, Paper ID: 11444.
- 4.17 K. Kostinakis and K. Morfidis (2017) "Application of Artificial Neural Networks for the Assessment of the Seismic Damage of Buildings with Irregular Infills' Distribution", Proceedings of the 8th European Workshop on the Seismic Behaviour of Irregular and Complex Structures, 19-20 October 2017, Bucharest, Romania.
- 4.16 I.K. Fontara, K. Kostinakis and A. Athanatopoulou (2017) "Seismic Behaviour of 3D R/C Irregular Buildings Considering Complex Site Conditions", Proceedings of the 8th European Workshop on the Seismic Behaviour of Irregular and Complex Structures, 19-20 October 2017, Bucharest, Romania.
- 4.15 K. Morfidis and K. Kostinakis (2017) "Approach to prediction of R/C buildings' seismic damage as pattern recognition problem using artificial neural networks", Proceedings of the 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN), 15-17 June 2017, Rhodes Island, Greece, pages: 3163-3188.
- 4.14 I.K. Fontara, K. Kostinakis and A. Athanatopoulou (2017) "Correlation between structure-specific intensity measures of site-dependent motions and frame response", Proceedings of the 16th World Conference on Earthquake Engineering, 9-13 January 2017, Santiago, Chile, Paper ID: 1625.
- 4.13 K. Kostinakis, A. Athanatopoulou, D. Arampatzi and A. Atsalos (2015) "In plan distribution of isolators effective stiffness for minimizing the torsional response of base isolated buildings", Proceedings of the 5th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN), 25-27 May 2015, Crete Island, Greece, pages: 4096-4113.
- 4.12 K. Kostinakis and A. Athanatopoulou (2015) "Prediction of seismic damage using scalar intensity measures based on integration of spectral values", Proceedings of the ICCSEE 2015 : International Conference on Civil, Structural and Environmental Engineering, 13-14 January 2015, Zurich, Switzerland, 9(01) Part III, Paper No: 113, pages: 541-549.
- 4.11 K. Kostinakis, M. Papadopoulos, A. Athanatopoulou and K. Morfidis (2014) "Correlation between structure-specific ground motion intensity measures and seismic response of 3D R/C buildings", Proceedings of the 2nd European Conference on Earthquake Engineering and Seismology, 25-29 August 2014, Instabul, Turkey.
- 4.10 I-K. Fontara, K. Kostinakis, F. Wuttke, A. Athanatopoulou-Kyriakou and G. Manolis (2014) "Effects of site conditions on ground motion and ensuing structural

- damage", Proceedings of the 2nd European Conference on Earthquake Engineering and Seismology, 25-29 August 2014, Instabul, Turkey.
- 4.9 K. Morfidis, K. Kostinakis and T. Salonikios (2014) "Influence of the soil flexibility on seismic damage level of R/C buildings subjected to multicomponent earthquake excitation with different orientation schemes.", Proceedings of the 9th International Conference on Structural Dynamics EURODYN 2014, 30 June-2 July 2014, Porto, Portugal, pages: 315-322.
- 4.8 K. Kostinakis, M. Papadopoulos and A. Athanatopoulou (2014) "Adequacy of advanced earthquake intensity measures for estimation of damage under seismic excitation with arbitrary orientation", Proceedings of the ICCSEE 2014 : International Conference on Civil, Structural and Earthquake Engineering, 28-29 April 2014, Paris, France, Vol: 8, No: 4, Paper No: 214, pages: 1020-1027.
- 4.7 K. Morfidis, K. Kostinakis and C. Karakostas (2013) "Comparative evaluation of different damage measures for reinforced concrete buildings considering variable incident angles", Proceedings of the 4th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN), 12-14 June 2013, Kos Island, Greece, Paper No: 1320, pages: 3850-3863.
- 4.6 I.-K.M. Fontara, K.G. Kostinakis and A.M. Athanatopoulou (2012) "Some issues related to the inelastic response of buildings under bi-directional excitation", Proceedings of the 15th World Conference on Earthquake Engineering, 24-28 September 2012, Lisbon, Portugal, Paper No: 3715.
- 4.5 Kostinakis K.G., Athanatopoulou A.M. and Avramidis I.E. (2011) "Effects of accelerogram scaling procedures on reinforcement of R/C members", Proceedings of the 8th International Conference on Structural Dynamics EURODYN 2011, 4-6 July 2011, Leuven, Belgium, Paper No: 701, pages: 300-307.
- 4.4 Kostinakis K.G., Athanatopoulou A.M. and Avramidis I.E. (2010) "Influence of orientation of recorded ground motion components on the longitudinal reinforcing steel area in concrete frame elements within the context of linear response history analysis", Proceedings of the 9th US National and 10th Canadian Conference on Earthquake Engineering, 25-29 July 2010, Toronto, Canada, Paper No: 1066.
- 4.3 Kostinakis K.G., Athanatopoulou A.M. and Avramidis I.E. (2009) "Influence of orientation of seismic records on structural response", Proceedings of the 33rd IABSE Symposium, 9-11 September 2009, Bangkok, Thailand, Paper No: 051-02-01.
- 4.2 Kostinakis K.G., Athanatopoulou A.M. and Avramidis I.E. (2008) "Selection of sectional forces for designing r/c frames analysed by time history analysis", Proceedings of the 14th World Conference on Earthquake Engineering, 12-17

October 2008, Beijing, China, Paper No 08-02-0010.

- 4.1 Kostinakis K.G., Athanatopoulou A.M. and Avramidis I.E. (2008) "Maximum response and critical incident angle in special classes of buildings subjected to two horizontal seismic components", Proceedings of the 6th GRACM International Congress on Computational Mechanics, 19-21 June 2008, Thessaloniki, Greece, Paper No: 1108.

CHAPTERS IN SCIENTIFIC BOOKS

- 6.4 K. Kostinakis and A. Athanatopoulou (2022) "Evaluation of the Effectiveness of Accidental Eccentricity in Capturing the Effects of Irregular Masonry Infills", Seismic Behaviour and Design of Irregular and Complex Civil Structures IV, Series of "Geotechnical, Geological and Earthquake Engineering - vol: 50", Springer, pages; 115-125.
- 6.3 A. Krystallis, A. Athanatopoulou and K. Kostinakis (2022) "Use of Fluid Dampers in Order to Improve the Seismic Performance of Reinforced Concrete Buildings with Asymmetric Plan-View", Seismic Behaviour and Design of Irregular and Complex Civil Structures IV, Series of "Geotechnical, Geological and Earthquake Engineering - vol: 50", Springer, pages; 189-200.
- 6.2 K. Kostinakis and K. Morfidis (2020) "Application of Artificial Neural Networks for the Assessment of the Seismic Damage of Buildings with Irregular Infills' Distribution", Seismic Behaviour and Design of Irregular and Complex Civil Structures III, Series of "Geotechnical, Geological and Earthquake Engineering - vol: 48", Springer, pages; 291-306.
- 6.1 I.K. Fontara, K. Kostinakis and A. Athanatopoulou (2020) "Seismic Behaviour of 3D R/C Irregular Buildings Considering Complex Site Conditions", Seismic Behaviour and Design of Irregular and Complex Civil Structures III, Series of "Geotechnical, Geological and Earthquake Engineering - vol: 48", Springer, pages; 279-290.