



Alexandra Troi

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Main fields of activity

- Historic buildings & cultural heritage
- Energetic refurbishment of buildings
- Cross-discipline communication

Personal data

- Born in Brixen - Italy, July 5, 1974
- Nationality Italian
- Married, two children
- Language skills: German (mother tongue), Italian and English (fluent: patentino A resp. CAE), French, Spanish and Swedish (basic), Polish (beginner)

Professional experience

- Since 2005: Vice Head of the Institute for Renewable Energy of the European Academy of Bozen/Bolzano - Italy
- 1999-2005: Researcher at the European Academy of Bozen/Bolzano - Italy (Institute for Alpine Environment)

Education

- PhD (Technical University of Munich - Germany, Prof. Gerhard Hausladen, 2010)
- Kirchenheizung. Eine Gratwanderung zwischen Behaglichkeit, Kosten und Denkmalpflege
- Degree in Electrical Engineering (Technical University of Munich - Germany, 1998)

Main interests

- Solutions for improving energy efficiency in historic buildings
- Approaches and tools to improve the multi-disciplinary dialogue to find the above solutions
- Indoor climate in heavy buildings - measurement and assessment
- Numerical simulation of energy, humidity and air flows in built environments

Main projects

Selection of past and current international projects and activities:

- CEN TC 346 WG8 energy efficiency of historic buildings. Member of the Editorial Task Group
- EWCHP 2013. Organisation of the 3rd European Workshop on Cultural Heritage Preservation in Bozen/Bolzano
- 3ENCULT (FP7 project 2010-2014) project development and coordination of a large research project on the energetic refurbishment of historic buildings (24 partners, 5M€ EC contribution)
- EFFESUS (FP7 project 2012-2016) on energy efficiency in historic districts, responsibility for existing solutions and integration of new solutions
- SMooHS (FP7 project 2008-2011) on Smart Monitoring of Historic Structures, WP-leadership for “Modeling and Analysis”
- SolarCombi+ (IEE project 2007-2010) Small Scale Solar Cooling Systems, project development and coordination.

Selection of past and current local projects and activities

- Villa Castelli, workshops on solution optimization for the energetic refurbishment of a listed historic building
- Round table of the city of Bolzano on energy refurbishment of historic buildings
- ExPost: monitoring and evaluation of a passive house – office building in Bolzano.
- Anstz Kofler, scientific monitoring of the (energetic) refurbishment of a listed historic building
- Several ongoing consulting projects regarding church heating systems (e.g. Münster Ingolstadt)

Publications & conference contributions

Books and contributions to books

- A. Troi, A. Z. Bastian (ed), Energy Efficiency Solutions for Historic Buildings. A Handbook, Birkhäuser, 2014
- A. Troi, E. Lucchi (ed), “Cultural Heritage Preservation. Proceedings of the 3rd European Workshop on Cultural Heritage Preservation”, Felix Verlag, Bozen / Bolzano, September 2013
- D. Exner, R. Lollini, F. Roberti, A. Troi, “Sviluppo di un approccio metodologico per la riqualificazione degli edifici storici: la Casa della Pesa di Bolzano, caso studio all’interno del progetto EU FP7 3encult”, contribution to the book case studies of energy retrofitting of historic building, editor Politecnico of Milan, 2013
- A. Troi, F. Roberti “Vewaltungsgebäude EXPOST Bozen – Erfahrungen aus der Modernisierung und aus dem Betrieb. Teil 2 – Betrieb & Monitoring” in W. Feist (ed.) „Protokollband 48: Einsatz von Passivhaustechnologien bei der Modernisierung von Nichtwohngebäuden“, Darmstadt, August 2012

Contributions in conference proceedings

- D. Exner, E. Lucchi, A. Troi, F. Freundorfer, M. André, W. Kofler Engl, „Energy efficiency of windows in historic buildings“, 18th International Passive House Conference, Aachen, Germany, April 2014
- A. Troi, “Solutions & tools for the conservation compatible energy retrofit of historic buildings” 17th International Passive House Conference, Frankfurt, Germany, April 2013
- A. Troi, „Innovative Konzepte der energetischen Modernisierung im Baudenkmal“, Tagungsband des 2. Darmstädter Ingenieurskongress, Shaker Verlag, pp. 213-218, Aachen, March 2013
- D. Exner, F. Haas, A. Troi, C. Franzen, “A tool for multidisciplinary development of energy efficiency solutions for historic buildings: the «Raumbuch » concept extended to energy aspects”, 2nd EWCHP European Workshop on Cultural Heritage Preservation, Oslo, September 2012
- A. Troi, R. Lollini, D. Exner, “Application of a holistic approach for realising energy efficiency in historic buildings respecting his heritage value”, AR&PA Biennial of Heritage Restoration and Management, Valladolid, May 2012
- A .Troi, R. Lollini, With a Holistic Approach and Multidisciplinary Exchange towards Energy Efficiency in Historic Buildings Respecting their Heritage Value, International Preservation News, n°55, December 2011
- A. Troi , P. Baldracchi , M. Pamplona, M. Krüger, C. Aibéo, S. Bachmaier , B. Buczynski, S. Simon, J. Chapuis, “Museum environment: Monitoring fully and partially conditioned rooms within SMooHS project”, EWCHP, Berlin September 2011
- C. Colla, P. Baldracchi, A. Troi, F. Ubertini, R. Carli, “Simulation and test procedures to correlate structural damage with moisture & salts migration in masonry”, Int. Symposium on Nondestructive Testing of materials and Structures NDTMS-2011, Istanbul, May 2011
- Troi, Historic buildings and city centres - the potential impact of conservation compatible energy refurbishment on climate protection and living conditions. International Conference Energy Management in Cultural Heritage, Dubrovnic, April 2011
- Troi, R. Lollini, Interdisciplinary research: FP7 project 3ENCULT - Efficient Energy for EU Cultural Heritage. International Conference Energy Management in Cultural Heritage, Dubrovnic, April 2011
- A.Troi, H. Mahlkecht, M. Rametta, R. Lollini, M. Benedikter, Anstz Kofler in Bolzano/Italy: Energy retrofit to near passive house standard and towards zero emission for heating and cooling. International Conference Energy Management in Cultural Heritage, Dubrovnic, April 2011
- Mahlkecht, H./ Exner, D./ Del Buono, M./Fedrizzi, R./ Lollini, R./Troi, A., Fallstudie zur Analyse und Integration von Solarthermie und Photovoltaik in Best Practice Wohngebäude in Südtirol. 2. Symposium OTTI Aktiv Solarhaus, September 2010
- Mahlkecht, H./ Avesani,S./ Troi, A./ Benedikter, M./ Felderer, G., Refurbishment and monitoring of an historical building - a Case Study. 47°AICARR Int. Conference, Tivoli - Roma, October 2009

- Fedrizzi, R./ Franchini, G./ Mugnier, D./ Melograno, P.N./ Theofilidi, M./ Thuer, A./ Nienborg, B./ Koch, L./ Fernandez, R./ Troi, A./ Sparber, W., Evaluation of Standard Solar Combi Plus Systems for Small Scale. 47° AICARR International Conference. Tivoli - Roma, October 2009
- Troi, A./ Tribus, M./ Costa, A./ Haberer, W./ Parisi, D./ Sparber, W., Energetic refurbishment and architectural valorisation: The ex-Post Building in Bozen/Italy. Ökosan, Weiz, October 2009
- Fedrizzi, R./ Franchini, G./ Mugnier, D./ Melograno, P.N./ Theofilidi, M./ Thuer, A./ Nienborg, B./ Koch, L./ Fernandez, R./ Troi, A./ Sparber, W., Assessment of Standard Small-Scale Solar Cooling Configurations within the SolarCombi+ Project. 3rd International Conference Solar Air-Conditioning, Palermo, October 2009
- Fedrizzi, R./ Franchini, G./ Mugnier, D./ Melograno, P.N./ Theofilidi, M./ Thuer, A./ Nienborg, B./ Koch, L./ Fernandez, R./ Troi, A./ Sparber, W., Evaluation of Standard Solar Combi Plus Systems for Small Scale Applications. CISBAT 2009 International Scientific Conference, Lausanne, September 2009
- Giovanardi, A./ Troi, A./ Sparber, W./ Baggio, P., Comfort analysis of a passive house in different locations in Italy. International Passive House Conference, Frankfurt, April 2009
- Troi, S. Avesani, A. Napolitano, J. V. Michael Bergmeister, Solar active school in Laion (Italy). Symposium Aktiv - Solarhaus, Krems, Juni 2009
- Troi, A./ Tribus, M./ Costa, A./ Haberer, W./ Parisi, D./ Sparber, W., Towards Zero Energy Renovation: Ex Post Building in Bolzano/Italy. PLEA - 25th Passive and Low Energy Architecture International Conference, Dublin, October 2008
- Castagna, M./ Troi, A./ Schmitt, Y./ Sparber, W., CasaNova, a low energy quarter. PLEA - 25th Passive and Low Energy Architecture International Conference, Dublin, October 2008
- Giovanardi, A./ Troi, A./ Sparber, W./ Baggio, P., Dynamic simulation of a passive house in different locations in Italy. PLEA - 25th Passive and Low Energy Architecture Int. Conf., Dublin, Oct. 2008
- Troi, A./ Vougiouklakis, Y./ Korma, E./ Jähmig, D./ Wiemken, E./ Franchini, G./ Mugnier, D./ Egilegor, B./ Melograno, P./ Sparber, W., Solar Combi+: Identification of most promising markets and promotion of standardised system configurations for small scale solar heating & cooling applications. EUROSUN 2008 - 1st International Conference on Solar Heating, Cooling and Buildings, Lisbon, October 2008
- Schmitt, Y./ Castagna, M./ Troi, A./ Sparber, W./ Zampieri, L./ Minotti, G./ Gotter, B./ Pichler, G., Energy performance of buildings in the autonomous province of South Tyrol, Italy. World Sustainable Building Conference, Melbourne, Australia, September 2008
- Castagna, M./ Schmitt, Y./ Troi, A., Analysis and optimization of a monitored passive house in Italy with dynamic simulation. 12. Internationale Passivhaustagung, Nürnberg, April 2008
- Sparber, W./ Troi, A., Solar assisted thermal cooling - a hot topic for buildings and districts? ICLEI European Climate Conference, Rovigo, April 2008

- Troi, A./ Benedikter, M., Kultureller Wiedergewinn und energetische Sanierung - Faktor 10 im denkmalgeschützten Altbau. 2. Internationales Anwenderforum "Energieeffizienz im Bestand", Kloster Banz, February 2008
- Schmitt, Y./ Troi, A./ Pichler, G./ Sparber, W., KlimaHaus CasaClima - a regional energy certification system stimulates low energy architecture. PLEA - 24th International Conference on Passive and Low Energy Architecture, Singapore, November 2007
- Troi, A./ Napolitano, A./ Sparber, W., Experiences with an innovative energy system: Refurbishment and enlargement of a rationalist building in Italy to a solar active building. PLEA - 24th International Conference on Passive and Low Energy Architecture, Singapore, November 2007
- Napolitano, A./ Troi, A./ Sparber, W., Monitoring activities for the optimization of a tri-generation plant including a solar heating and cooling system. 2nd International Conference Solar Air-Conditioning, Tarragona, October 2007
- Troi, A./ Sparber, W., Overview of Realized Passive Houses in South Tyrol / Italy and Trends. 11. Internationale Passivhaustagung Bregenz 13.04. – 14.04.2007
- Troi, A./ Hausladen, G., Indoor Climate and damage risk due to heating systems in South Tyrolean churches. Jure Radic et.al. (eds.) Heritage Protection - Construction Aspects. Zagreb: second HDGK, 2006
- Troi, A./ Franzen, C./ Hausladen, G., Computational fluid dynamics can ensure high quality conservation interventions. A case study. Jure Radic et.al. (eds.) Heritage Protection - Construction Aspects. Zagreb: second HDGK, 2006
- Troi, A. / Hausladen, G., Hot air heating in churches - the influence of operation mode. In M. Drdacky (ed.) Proceedings of SAVEUR. Praha: 2006
- Besana, F. / Troi, A. / Sparber, W., Solar Combi-Plus System for residential and small commercial applications. Word Sustainable Energy Days, 1.-3. March, Wells (Austria), 2006
- Troi, A. / Filippi, H. / Sparber, W., Practical experience with solar assisted cooling in an office and educational building in South Tyrol/Northern Italy. 1st International Conference on Solar Air Conditioning. Regensburg: Otti, 2005
- Besana, F. / Troi, A. / Sparber, W., Combi-system coupled with a small-capacity absorption chiller. 1st International Conference on Solar Air Conditioning. Regensburg: Otti, 2005
- Troi, A. / Lun, G. / Tappeiner, G. / Tappeiner, U., Analysis of high energy intensity of tourism in South Tyrol. 2nd Young Scientists Conference on Interdisciplinary Mountain Research, Trafoi, 2004
- Troi, A. / Franzen, C. / Hausladen, G., CFD-simulation as integrated tool in high quality conservation interventions. A case study. ITECOM European Conference "Innovative Technologies and Materials for the Protection of Cultural Heritage. Industry, Research, Education: European Acts and Perspectives." Athens (Greece), 2003
- Troi, A. / Hausladen, G., Heating Effects in South Tyrolean Churches poster. In: H. Levin (ed.): Indoor Air 2002: Proceedings of the 9th International Conference on

Indoor Air Quality and Climate, Vol. 4. Santa Cruz, California: Indoor Air, 2002, p. 848-853

- Troi, A. / Leichter, K. / Perini, St., Sustainable development in South Tyrol: Indicators for the assessment of the development in an alpine region. In: Bottarin, Roberta / Tappeiner, Ulrike (ed.): Interdisciplinary Mountain Research. Berlin: Blackwell, 2002, p. 256-262
- Troi, A. / Franzen, C. / Hausladen, G., Indoor Environment Measurements and Salt Degradation on Cultural Heritage poster. At: "5th EC Conference on Cultural Heritage Research: a Pan-European Challenge" in Cracow (Poland), 26.-18.05.2002
- Troi, A. Abschätzen des Schadensrisikos beim Beheizen alter Kirchen mit Hilfe der Strömungssimulation. At: HVAC-Workshop "Einsatz von Strömungssimulationssoftware zur Berechnung von Kühl-, Belüftungs-, Erwärmungs- und Rauchausbreitungsvorgängen", 13.03.2001, Berlin
- Troi / G. Hausladen, Assesment of damage risk in heated churches with CFD poster. In: Brandt-Grau, A. / Chapuis, M. / Leissner, J. / Pérez-Vitoria, S. (eds.): Proceedings of the Conference "Research for protection, conservation and enhancement of cultural heritage: opportunities for European enterprises" in Strasbourg (France), 22-24/11/2000, Luxembourg: European Commission, 2002, p. 221
- Troi/ L. Gattoni, Das thermische Verhalten von nicht klimatisierten Gebäuden unter sommerlichen Randbedingungen im mediterranen Klima. Diplomarbeit an der Technischen Universität München, 1998
- L. Gattoni. / A. Troi, Influenza della configurazione dell'involucro, delle masse interne de dei modellu d'uso sul comfort termico in regime estivo. Tesi di laurea presso il Politecnico di Milano, 1998

Lectures

- 24.1.2015, "Existing and replicable technologies for energy efficiency improvements in historic districts" at the "International Symposium: Energy Efficiency for EU Historic Districts' Sustainability (EFFESUS)", BAU 2015, Munich, Germany
- 11.12.2014, Lesson on "Aspetti termo-igrometrici di soluzioni per isolamento interno" (6h) within the "Acceleratore d'Innovazione", TIS (edizione 2014)
- 3.-5. and 10.-12.11.2014, „Mit richtigem Lüften und Heizen Schäden in der Kirche vermeiden“ at the „Mesner Gebietstagungen“, South Tyrol
- 31.10.2014, "Energy efficiency of windows in historic buildings", Pasivny domy, Brno, Czech Republic
- 30.9.2014, "3encult – Efficient energy for EU cultural heritage", Historic Scotland's energy efficiency conference 2014, Day 1 European research, initiatives and case studies, Royal Concert Hall, Glasgow, Scotland
- 4.-5.7.2014, Training module "Efficienza energetica degli edifici storici: interventi di riqualificazione" (6h lesson, 4h exercise) within Corso FSE "Esperto della diagnosi energetica ed ambientale – Trasformare il costruito"
- 11.6.2014, Diskussion im Science Café "Schön warm. Sinn und Unsinn der energetischen Sanierung"

- 10.6.2014, “La riqualificazione energetica di edifici in legno: presentazione di un caso di studio”, Workshop “La montagna abitata, legno e costruzioni sostenibili nelle Alpi”, Museo delle Scienze, Trento
- 9.4.2014, “How 3ENCULT is busy bridging the gap between preservation of European cities’ cultural heritage and energy efficiency”, invited presentation at the Better Buildings Conference 2014 in Dublin
- 8.4.2014, Invited keynote on energy efficiency in historic buildings during the Irish ICOMOS meeting in Dublin.
- 4.3.2014, 3ENCULT presentation at the Workshop for policy makers and local governments on “Bridging the gap between energy efficiency and heritage protection– Bridging the gap between preservation of European cities cultural heritage and energy efficiency” in Alba Iulia, Romania
- 7.2.2014, “Introducing 3ENCULT – Bridging the gap between preservation of cultural heritage and energy efficiency” at the 3ENCULT workshop on Conservation compatible energy retrofit of historic buildings in Brussels, Belgium, organized with the collaboration of Architects Council of Europe at ALPEUREGIO Common Representation.
- 12.11.2013, Passive & active solutions for conservation and energy efficient retrofit, ATFORT meeting in Utrecht
- 05.11.2013, Chairing the session “Integrate solar concepts in historic buildings” at the Energy Forum 2013 in Brixen, Italy
- 18.10.2013, Efficientamento energetico e immobili storici: Risultati e prospettive LUBEC 2013, Lucca, Italy
- 16.-18.9.2013, Scientific coordinator and chair of EWCHP 2013 -3rd European Workshop on Cultural Heritage Preservation.
- 03.07.2013, Presentation of 3ENCULT as success story at the GovernEE conference at Hódmezővásárhely, Hungary
- 28.6.2013, Chairing and contributing to the Workshop “Cultural heritage and energy efficiency: Market ready solutions for preserving historic buildings using innovative measures and technologies” within the EUSEW 2013, Brussels, Belgium
- 16.6.2013, Chairing and contributing to the Workshop “Special HVAC Solutions for the Refurbishment of Historic Buildings” within the 11th REHVVA world Congress CLIMA 2013, Prague, Czech Republic
- 23.3.2013, Seminar “Energy retrofit of Historic Buildings – 3Encult Solutions & Tools”
- Organized and chaired by Alexandra Troi in collaboration with 3encult partners within Salone del Restauro 2013, Ferrara, Italy
- 21.3.2013, Seminar “Energy retrofit of Historic Buildings – a chance for preserving our historic city scape, keep town centres and attractive living space and protect our climate?”
- Organized and chaired by Alexandra Troi in collaboration with 3encult partners within Salone del Restauro 2013, Ferrara, Italy

- 12.-14.6.2013, “Energy Retrofit - special aspects to be considered in historic buildings” Module 7 : Lecture & Training (20h) within expert course on energy retrofit, organized by CNA (Confederazione Nazionale Artigianato)
- 24.3.2013, “3ENCULT- developing win-win solutions for users comfort and energy efficiency in historic buildings”, oral presentation at “3ENCULT Study Tour - historic buildings renovation in Bologna” Bologna, Italy
- 23.3.2013, “Introducing 3ENCULT – Bridging the gap between preservation of European cities cultural heritage and energy efficiency” oral presentation at the 3ENCULT workshop “Preserving community history through energy efficiency”, Bologna, Italy
- 22.1.2013, “Bau-, Energie- und Sanierungsberatung. Informationen für Bürgerinnen und Bürger”, Taufers im Münstertal, Participation as expert in the round table discussion, within the event organised by EÜRAC’s institute for Public Management.
- 3.12.2012, “Energy Efficient Solution for the Built Heritage, the 3ENCULT FP7 Project”, invited presentation at the Trainrebuild workshop “Training Local Authorities and Private Property Owners in Retrofitting Heritage Buildings” Brussels, Belgium
- 29.11.2012, “Risanamento energetico di edifici storici. Lo stato della ricerca in EURAC” invited presentation at “Ri-Usò – rigenerazione urbana. Efficienza energetica in contesti storici” Bolzano, Italy
- 26.6.2012, “Bridging the gap between preservation of European cities’ cultural heritage and energy efficiency”, 3ENCULT Study Tour, Copenhagen, June 2012
- 17.-18.5.2012, Modul 16: „Fallstudie: Energieeffizientes Bauen und Sanieren“ (20 hours) des „Master in Management – Schwerpunkt Holzwirtschaft II“
- 25.5.2012, “Development of a conservation compatible highly energy efficient window. Example for a successful multidisciplinary approach within FP7 project 3ENCULT”, Innovation Pavillon at AR&PA Biennial of Heritage Restoration and Management, Valladolid, May 2012
- 25.5.2012, 3ENCULT – Efficient Energy for EU Cultural Heritage”, ECTP-FACH meeting at the AR&PA Biennial of Heritage Restoration and Management, Valladolid, May 2012
- 11.1.2012, participation as invited expert in the seminar on European Policy and Cultural Heritage Conservation “Architectural Heritage and Energy Efficiency. Searching for Solutions“ organised by Cristina Gutiérrez-Cortines MEP , Brussels
- 27.10.2011, “Energy efficiency in historic buildings – the 3ENCULT project in focus”, Local Renewables Freiburg 2011, Freiburg/Germany
- 13.-15.10.2011, Modul 19: „Fallstudie: Energieeffizientes Bauen und Sanieren“ (20 hours) des „Master in Management – Schwerpunkt Holzwirtschaft“
- 30.3.2011 “Development of structural and fluidodynamic modelling and simulation for historic buildings and construction materials”. SMooHS: recent developments of monitoring and diagnostic systems of historic structures, Restauero, Ferrara/Italy
- 21.10.2010 “3ENCULT – Efficient Energy for EU Cultural Heritage”. Öffentliche Vortragsveranstaltung, Innsbruck/Austria

- 29.9.2010, „Modelle und Simulation für ein verbessertes Monitoring“. 1st Workshop on Smart Monitoring of Historic Structures, Stuttgart/Germany
- 15.9.2010 “Options for energy efficient renovation of historic building stock”. 6th Breakfast at Sustainability’s (B@S), Brussels/Belgium
- 23.9.2009, “Kirchenheizungssysteme, ein Beitrag zur Diskussion”. Bauämtertagung, Hall in Tirol, settembre 2009
- 30.09.2008, Invited contribution to 2nd Expert Meeting concerning Church Heating - Kloster Marienstern/Panschwitz - Kuckau, Dresden/Germany
- 11.6.2008, Invited contribution at the “Solar Air-Conditioning Seminar” in Munich, Germany, on “Overview of Solar Cooling Systems for Commercial Buildings”
- 16.5.2008, Lecture for the inauguration of the exhibition on solar architecture in Bolzano on occasion of the European Solar Days on „Das Haus als Sonnenkraftwerk“
- 26.10.2007, Lecture at 2nd South Tyrol Passive House Conference, St. Leonhard in Passeier, 26th -27th October 2007 on “Passive houses in South Tyrol”
- 18.9.2007, Invited contribution to 1st Expert Meeting concerning Church Heating - Kloster Marienstern/Panschwitz - Kuckau, Dresden/Germany
- 25.11.2005, Guest lecture for restorers within "Incontri di Restauro 5 - Giornata di studi" at Trento, Italy. "Church Heating. La situazione in Alto Adige"
- 1.7.2005, Scientific Workshop - CAMELIA "Eco-building demand compatibility with Polygeneration", at Messina, Italy: "Eurac Research's new building: An Energy System integrating Solar Cooling and Polygeneration"
- 20.5.2005, Lecture at SolarExpo, Vicenza, Italy: "Energy system with solar assisted air conditioning and polygeneration -EURAC building"
- 10.11.2004, Invited lecture for FIDAP at Bolzano, Italy: "Il popolo delle batterie scariche punta sulle energie rinnovabili"
- 27.2.2004, Lecture within the energy days of the South Tyrolean Craftsmen Association: "Solar Cooling"
- 1.8.2002, Guest lecture at the Getty Conservation Institute "Church heating - a balancing act between comfort, costs and conservation" upon invitation of the Getty foundation in Los Angeles (California)
- 15.2.2001, Lecture for architects and engineers at the conference hall of the Südtiroler Sparkasse AG, Bolzano (Italy) "Which is the most suitable heating system for churches?"
- 29-30.6.2000, Coordination of a Workshop with experts in the fields of heating engineering and cultural heritage preservation on "Church heating - a balancing act between comfort, costs and conservation" at the European Academy of Bozen/Bolzano (Italy)
- 21.10.1999, Lecture and discussion at the pastoral centre of the dioceses Bolzano/Bressanone (Italy) for parish priests and members of the parish council on "Church heating - a balancing act between comfort, costs and conservation"

Other articles

- Troi, Mit den Forschern tüfteln. In: *Academia* 29 (2002), p.29

- Troi. / Niedermair, H., Die Klimaanlage, die mit der Sonne kühlt ... und so funktioniert sie. In: Academia 23 (2000), p.34-35
- Troi, Akademie heizt den Kirchen ein. In: Academia 20 (1999), p.18-21