

**PD Dr. Dr.-Ing. Habil Catalin Teodoriu**  
**Associate Professor, The University of Oklahoma**

**Summary**

Extremely motivated, experimentalist and student success focused Engineering Professor, with a dual expertise in mechanical and petroleum engineering. Exceptional track record of research projects with wide impact and more than 250 published articles. More than half of supervised PhD students pursuing academic careers. Developed and built the largest stick slip simulator worldwide - a combination of mechanical, electronics, robotics and software setup.

**Expertise**

Well integrity, drilling automation, drilling and production equipment, drilling technology, integrated computer-aided analysis (CAD, CAM, FEM), well completion, testing of OCTG, well integrity and optimization, design of downhole and surface equipment, software development, EOR and geothermal wells, design of laboratory equipment, enhanced geothermal concepts and geothermal drilling.

**Education**

**Habilitierung** (Authorisation of Lecture as a Professor), Clausthal University of Technology, Germany, 2011

**PhD in Technical Sciences**, Petroleum-Gas University of Ploiesti, Romania, 2005

**PhD in Petroleum Engineering**, Clausthal University of Technology, Germany, 2003

**Advanced Studies in Petroleum Equipment for Offshore Production**, Petroleum-Gas University of Ploiesti, Romania, 1997

**BSc. and MSc. in Mechanical Engineering**, Petroleum-Gas University of Ploiesti, Romania, 1996

**Professional Experience**

January 2015-present

**Associate Professor (with tenure on arrival), Mewbourne School of Petroleum and Geological Engineering, The University of Oklahoma**

**Director of the Drilling Simulator Center at MPGE - since 2016**

Teaching more than 6 courses per year in the area of drilling and completion, human factor, well integrity; supervising students and performing a variety of research related to drilling and completion as well as general drilling and production hardware.

2014-present

**Visiting Professor, Clausthal University of Technology (equivalent to adjunct professor in the US system)**

Teaching two courses per year and supervising students as well as performing collaborative research.

2012-present

**Visiting Professor, Petroleum-Gas University of Ploiesti, Romania (equivalent to adjunct professor in the US system)**

Teaching two courses per year and supervising students as well as performing collaborative research.

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2017-2018

**Visiting Professor, Cranfield University, UK, (equivalent to adjunct professor in the US system)**

Working together with Cranfield faculty to develop the Geothermal Engineering Program.

2009-2016

**Adjunct Assistant Professor, Texas A&M University, USA**

Teaching 2 online courses per year, supervising research and students at the Petroleum Engineering Department of TAMU.

March 2012–December 2014

**Interim Chair for Research and Teaching, Drilling and Production Department, Clausthal University of Technology**

Responsible for the entire drilling research and teaching, supervision of workshop activities.

January 2009-December 2014

**Head of Drilling, Completion and Workover (Bereichsleiter Bohrtechnik, Komplettierung und Workover) and Research Supervisor, Department of Petroleum Engineering, Clausthal University of Technology, Germany (with tenure)**

Teaching undergraduate and graduate classes on drilling, completion, workover and production engineering. Carrying out research on threaded connections, experimental stress analysis, finite element modeling, formation damage, cementing, geothermal drilling applications, design and construction of various high-pressure high-temperature testing equipment. Coordinator of Collaborative Research Program, Geothermal Energy and High-Performance Drilling - *gebo*, Focal Point for Drilling Area of Research.

May 2006-January 2009

**Assistant Professor, Texas A&M University, USA**

Teaching undergraduate classes on drilling engineering. Research covering high-pressure high-temperature testing of gases, drilling fluids and cements. Upgrading of drilling simulators.

2003–April 2006

**Research Supervisor, Clausthal University of Technology, Germany**

Giving lectures in petroleum engineering (fundamentals of drilling engineering, drilling equipment, advanced drilling engineering, completion and workover). Scientific research on OCTG (threaded connections, experimental stress analysis, finite element modeling, formation damage, cementing), design and construction of testing equipment with focus on high-pressure high-temperature autoclaves. Webmaster and Web-design of the Department of Petroleum Engineering website.

2000-2003

**Research Engineer, Clausthal-University of Technology, Germany**

Preparing lectures (drilling equipment, oil and gas production). Teaching students in oil and gas equipment field. Experimental and numerical stress analysis.

1998-2000

**Guest Scientist, Clausthal University of Technology, Germany**

Performing testing shouldered threaded connections for oilfield tubular goods, testing tubular goods under extreme conditions, data acquisition systems experimental stress analysis.

1996-1998

**Mechanical Engineer, Prototype and Production Laboratory, Institute for Research & Technology, Campina, Romania**

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Member of the research team for steam stimulation projects: design and test completion equipment for steam stimulation wells, technology for operations, development of a new completion for steam stimulation wells, development of a new type of packer for steam injection. Member of the research team for sand control projects: Design and testing of novel packer for sand control. Member of the research team for downhole data acquisition system: mechanical parts design, development of a software for data acquisition and analysis. Other works: laboratory tools and equipment, design and construction of water treatment equipment

## **Awards and Recognitions**

OU Presidential International Travel Fellowship, The University of Oklahoma, 2016, 2018

SPE Regional Chapter Drilling Award, Oklahoma City, 2018

SPE Student Best Faculty Award, MPGE, The University of Oklahoma 2016, 2017

Inaugural holder of the CJ Craft Faculty Fellowship at Texas A&M University, 2008

PETROM SA scholarship for exceptional students, 1995-1996, Petroleum-Gas University of Ploiesti, Romania

Scholarship for high ranked students, 1991-1996

Valedictorian of the class of 1996, Petroleum-Gas University of Ploiesti, Romania

## **Patents**

Patent of a new premium connection, 2008, 2015

Patent of a new geothermal concept ("**Geothermische Energiegewinnung**"), Swiss, February 2013

## **Academic Service**

### **University and Departmental Service (at OU)**

Director of the OU Drilling Simulation Center, 2016-present

Member of the Faculty Senate, University of Oklahoma, 2019-present

Member of the Laboratory Safety Committee, University of Oklahoma, 2019-present

Member of the Faculty Senate Diversity, Equity, and Inclusion Committee, University of Oklahoma, 2018-2019

Member of the Ad-hoc Committee on Research Ethics, University of Oklahoma, 2018

AADE Faculty Liaison for AADE Student Chapter, University of Oklahoma, 2016-present

Member of the Awards Committee, MCEE, 2019-present

Member of the Diversity and Inclusion Committee, MCEE, 2018-present

Departmental Safety Officer, MCEE, 2018-present

Member of the Search Committee Joint Chair, AME and MPGE, 2019

Member of the Undergraduate Committee, MPGE, 2018-present

Member of the Departmental Award Committee, MPGE, 2016-present

Member of the Committee A, MPGE, 2016-2019

Member of the Search Committee Experimental Research position MPGE, 2016,2017

Member of the Search Committee Drilling position MPGE, 2015, 2016

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### **University and Departmental Service (other universities)**

Project manager and board member of the Design and Construction of Drilling Simulator Celle, 2013-2014

Departmental Safety Officer, Clausthal University of Technology, 2010-2014

Member of the Undergraduate Committee, ITE, Clausthal University of Technology, 2009-2014

Member of the Graduate Committee, ITE, Clausthal University of Technology, 2009-2014

Departmental Safety Officer, Texas A&M University, 2006-2008

Member of the Undergraduate Curriculum Committee, PETE, Texas A&M University, 2006-2008

Member and Treasurer of the non-Profit Organization "Anton Raky", 2003-2018

### **Other Service**

Serving Judge Mid-Continent Regional Student Paper Contest, 2016, 2018

Serving Judge OU MPGE SPWLA Student Paper Contest, 2017

Serving Judge OU MPGE SPE Graduate Student Paper Contest, 2016

## **Professional Service**

Associate Editor for Energies Journal and MDPI Publisher, 2019-present

Associate Editor for Journal of Natural Gas Science & Engineering, 2015-present

Associate Editor for Petroleum Science and Engineering Journal, 2013-present

Technical Reviewer for multiple journals with MDPI, 2016-present

Technical Reviewer for Petroleum Science and Engineering Journal, 2009-present

Technical Reviewer for Journal of Natural Gas Science & Engineering, 2008-present

Technical Reviewer for multiple Elsevier Journals, 2008-present

Technical Reviewer for multiple Springer Journals, 2008-present

Technical Reviewer for SPE Journals, 2007-present

Technical Reviewer for ASME Journal of Energy Resources Technology, 2006-present

Technical Reviewer for Geothermics, 2006-present

Technical Reviewer for HEFAT 2007 peer review conference, 2006

Technical Reviewer for European Oil and Gas Magazine, 2005-present

Ad-hoc reviewer for various conferences (too many to be listed here)

Session Chair, ASME International Conference on Ocean, Offshore & Arctic Engineering, Madrid and Glasgow, 2017-2018

Chair of the drilling session at the Stanford Geothermal Workshop, 2015-2020

Chair of various sessions for the Celle Drilling Conference, 2012-2014

Chair of Well Completion and Case Studies Session at ATCE, 2007-2009

Member of the Celle Drilling Conference Committee, 2012-2015

Member of the Editorial Board of SOCAR Proceedings Journal, 2010-present

Member of the Committee of the Unconventional Gas International Conference, 2008-2010

Member of the SPE ATCE Technical Subcommittee for Well Operations, 2007-2009

Member of the National Petroleum Council, Unconventional Reservoirs Group, 2007

Member of the Society of Petroleum Engineers – SPE, 2006-present

Member of DGMK (Society of German Geosciences Engineers), 2003-present

## Extra Qualifications

Excellent computer skills (software and hardware)

Operating systems: DOS, Windows – advance; Unix-beginner

MS Office packet (MS Word, MS Excel, MS PowerPoint)

Image editing programs (Corel Draw, Micrografx Picture Publisher)

CAD programs (AutoCAD, MathCAD, Mechanical Desktop, SolidWorks), Autodesk certified trainer 1997

FEM programs (COSMOSM, CosmosWorks, Ansys)

Programming languages (Basic, Borland Pascal, Delphi, Matlab)

Data acquisition programs (DasyLab, Labview)

Excellent electric and electronics skills

## Consulting

Performed consulting work, especially technical expertise, for the following companies: RWE DEA, VoestAlpine, Perforator GmbH, KCA Deutag, RWE Kalle, DBE, Petrom SA, OMV Romania, Exxon Mobil – EMPG, Daldrup, many other small companies.

Performed industry in house workshops for various companies by direct request or through various training companies.

## Teaching Record

### University Courses

PE 4323, Drilling and Completion II, MPGE, University of Oklahoma, 2015-2019

PE 5433, Horizontal Drilling Technology, MPGE, University of Oklahoma, 2016-2019

PE 5970–1, Advanced Drilling Technology, MPGE, University of Oklahoma, 2016-2019

PE 5970–2, Completion and Workover, MPGE, University of Oklahoma, 2015-2019

PE 5970–3, Well Integrity, co-taught, MPGE, University of Oklahoma, 2018-2019

PE 5970–4, Human Factor, co-taught, MPGE, University of Oklahoma, 2018-2019

PE 4970-1, Cementing Well Technologies, MPGE, University of Oklahoma, 2018

PE 5970–5, Monitoring, Diagnosis & Maintenance, MPGE, University of Oklahoma, study abroad course, held in Romania, 2016

PE 5970–6, Exploitation of Drilling Equipment, MPGE, University of Oklahoma, study abroad course, held in Romania, 2016-2020

PE 4970–25a, Exploitation of Drilling Equipment, MPGE, University of Oklahoma, study abroad course, held in Romania, 2016-2020

PE 4970–25b, Monitoring, Diagnosis & Maintenance, MPGE, University of Oklahoma, study abroad course, held in Romania, 2016

Monitorizarea, Interpretarea si Fiabilitatea Echipamentului Petrolier, Petroleum-Gas University of Ploiesti, 2012-present

Ingineria Exploatarii Optimale a Echipamentului Petrolier, Petroleum-Gas University of Ploiesti, 2012-present

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PETE 405, Drilling Engineering, Department of Petroleum Engineering, Texas A&M University, 2006-2009

PETE 225, Introduction to Drilling Engineering, Department of Petroleum Engineering, Texas A&M University, 2007-2008

PETE 627, Completion and Workover, Department of Petroleum Engineering, Texas A&M University, 2007-2009

PETE 627, Completion and Workover (online), Department of Petroleum Engineering, Texas A&M University, 2010-2015

PETE 650, Advanced Drilling Engineering, Department of Petroleum Engineering, Texas A&M University, 2008-2015

Completion and Workover, Institut für Erdöl- und Erdgastechnik, Clausthal University of Technology, 2005-2020

Advanced Drilling Technology, Institut für Erdöl- und Erdgastechnik, Clausthal University of Technology, 2004-2016

Tiefbohrtechnik 1 - Bohrverfahren, Skript zur Vorlesung, Institut für Erdöl- und Erdgastechnik, Clausthal University of Technology, 2003-2014

Tiefbohrtechnik 2 – Anlagen und Geräte, Skript zur Vorlesung, Institut für Erdöl- und Erdgastechnik, Clausthal University of Technology, 2003-2014

Praktikum für Tiefbohrtechnik, Skript zu dem Praktikum, Institut für Erdöl- und Erdgastechnik, Clausthal University of Technology, 2002-2014

### **Industry Seminars**

1. Teodoriu, C. Instructor for HOT Engineering (a training company), 2009-present. Selection of courses taught: Horizontal and Directional Drilling, Basic Drilling Engineering, Advanced Drilling Technology, Advanced Completion Technology
2. Teodoriu, C. Instructor for NExT (a training company), 2007-2010. Courses taught: Stuck Pipe Course, Drilling Hydraulics, Casing Design, Directional and Horizontal Drilling, Drillstring Mechanics, Stuck Pipe and Differential Pipe Sticking Mechanics
3. Teodoriu, C. In-house short courses on OCTG, Drilling Problems and Drilling Technology for small companies
4. Reichetseder, P., Teodoriu, C. Kurz-Seminar, Petroleum Production Engineering, J. H. Bornemann GmbH, Obernkirchen, Germany, September 2003
5. Teodoriu, C. Drilling Summer School, Clausthal University of Technology, Germany, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014
6. Teodoriu, C. Kurz-Seminar, Oil Production Systems, BASF, Ludwigshafen, Germany, May 2006
7. Teodoriu, C. Short Seminar, Drill String Mechanics, Perforator GmbH, Germany, April 2006
8. Teodoriu, C. Short Seminar, Drill String Mechanics, Weatherford Oil Tools GmbH, Germany, April 2006

## Languages

Romanian – native  
 English – fluent  
 German – near native

## Projects and Grants

### A. Before 01/01/2015

Institution at where funded/ Source of Funds	Title of Project	Start/End Date	Total Amount	PI/Co-PI	Percentage
Texas A&M, USA Crisman Institute for Petroleum Research (External)	Design and construction of a dedicated facility for the experimental study of modelling of liquid loading in gas wells.	09/15/2006-09/14/2008	\$120,000	Co-PI PI: Falcone, G.	50%
Texas A&M, USA Crisman Institute for Petroleum Research (External)	Analysing pressure and temperature data from smart plungers to optimize lift cycles.	09/15/2006-09/14/2009	\$60,000	Co-PI PI: Falcone, G.	50%
Texas A&M, USA Crisman Institute for Petroleum Research (External)	Design of fluids for drilling through gas hydrates	09/01/2006-07/15/2010	\$60,000	Co-PI (original PI) PI: Falcone, G. (starting Jan. 09)	50%
Texas A&M, USA Crisman Institute for Petroleum Research (External)	Gas viscosity at high-pressure and high temperature	09/01/2006-05/15/2012	\$60,000	Co-PI (original PI). PI: Falcone, G. (starting Jan. 09)	50%
Texas A&M, USA Crisman Institute for Petroleum Research (External)	Analysing pressure and temperature data from smart plungers to optimize lift cycles.	01/15/2007-01/14/2009	\$60,000	Co-PI PI: Falcone, G.	50%
Texas A&M, USA MMS/OTRC	Cement fatigue and HPHT well integrity with application to life of well prediction	12/01/2007-12/15/2008	\$80,000	PI Co-PI: Schubert, J.	50%
Texas A&M, USA AERA LLC	Study of fatigue resistance of selected tubing connection types using finite element method and local stress/strain method	01/01/2008-04/31/2008	\$20,000	PI	100%
TU Clausthal, Germany Service provider for industry	Pipe testing, laboratory measurements, student research support	01/01/2009-12/31/2009	~\$300,000	PI	100%
TU Clausthal, Germany VoestAlpine Tubulars GmbH	Endowment for testing facility upgrade	01/01/2009-12/31/2010	~\$300,000	PI	100%

TU Clausthal, Germany Ministry for Science and Culture of Lower Saxony, Germany	Geothermal energy and high-performance drilling research program - gebo	March 2009 March 2014	Total Project Costs: 12 Million EURO Teodoriu budget: 1,4 Million Euro	Co-PI and Focal Point for Drilling Research Area	100% (of €1,4 Million)
TU Clausthal, Germany Service provider for industry	Pipe testing, laboratory measurements, student research support	01/01/2010-12/31/2010	~\$600,000	PI	100%
TU Clausthal, Germany QNRF, Qatar National Research Foundation (QNRF), NPRP09-489-2-182	Investigation on long-term stability of casing-cement-rock systems exposed to variable loads with application to well integrity management	Dec. 2010	Total Project Costs \$1,050,000 Teodoriu budget: \$49,999	Co-PI PI: Amani, M.	100%
TU Clausthal, Germany Service provider for industry	Pipe testing, laboratory measurements, student research support	01/01/2011-12/31/2011	~\$500,000	PI	100%
TU Clausthal, Germany, Kanton Wallis, Swiss Confederation	Machbarkeitsstudie einer extrem tiefen Geothermiebohrung für den Einsatz in der Schweizregion	01/15/2011-05/15/2011	~\$7000,00	PI	100%
TU Clausthal, Germany European Fund SUGAR 2 Section B3	Drilling and production of gas hydrates	06/15/2011-06/14/2013	~\$700,000	PI	100%
TU Clausthal, Germany Service provider for industry	Pipe testing, laboratory measurements, student research support	01/01/2012-12/31/2012	~\$700,000	PI	100%
TU Clausthal, Germany Service provider for industry	Pipe testing, laboratory measurements, student research support	01/01/2013-01/01/2013	~\$900,000	PI	100%
TU Clausthal, Germany	Drilling Simulator Celle	01/01/2013-01/01/2015	~€10,000,000	PI until leaving TU Clausthal	100%

**B. After 01/01/2015 since joining OU (all amounts are actual amounts as PI/Co-PI)**

<b>Institution at where funded/ Source of Funds</b>	<b>Title of Project</b>	<b>Start/End Date</b>	<b>Individual Share</b>	<b>PI/Co-PI</b>	<b>Percentage</b>
University of Oklahoma, USA Start-up funds	Development of a centralizer testing unit	01/01/2015-12/31/2015	\$50,000	PI	100%
University of Oklahoma, USA Start-up funds	Development of the well integrity laboratory at OU	2015-2016	\$110,000	PI	100%
University of Oklahoma, USA Start-up funds	Development of high pressure OCTG testing laboratory	2015-2017	\$190,000	PI	100%
University of Oklahoma, USA Start-up funds	Development of the largest stick slip simulator worldwide	01/01/2016-12/31/2016	\$80,000	PI	100%
University of Oklahoma, USA BSEE	Integrity of liner hanger sealing elements	12/12/2016-06/11/2018	\$81,320	Co-PI PI: Salehi, S.	25% of the total project \$325,281
University of Oklahoma, USA Industry sponsor	WCTC Testing of centralizers according to API 10D	04/21/2017-04/22/2018	\$11,959	PI	100%
University of Oklahoma, USA Conoco Phillips Support (Spirit Scholar Fund)	Development of the next level drilling simulator (donation)	08/15/2017-08/14/2018	\$115,000	PI	100%
University of Oklahoma, USA University of Ploiesti	WCTC Testing: Standard testing of composite pipes	09/18/2018-09/17/2019	\$10,588	PI	100%
University of Oklahoma, USA Industry sponsor	Drilling vibration and automation experimental setup - Phase 1	11/15/2018-11/18/2019	\$145,964	PI	100%
McCoy grant	Development of a digital sucker rod pumping unit	03/01/2019-4/30/2020	\$59,500	PI	34% of the total budget \$180,000
University of Oklahoma, USA QRNF	Development of a cement repository to monitor long-term cement properties to minimize well integrity incidents and environmental impact of oil, gas and underground storage wells - Phase 1 out of 3	06/01/2019-06/01/2020	\$43,741	PI at OU LPI: Amani, M. (Texas A&M Qatar)	60% of the total OU phase 1 of the project: \$79,530

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University of Oklahoma, USA DOE	Developing advanced lost prevention methods and smart wellbore strengthening materials for geothermal wells	06/01/2019-06/01/2023	\$431,349	Co-PI PI: Salehi, S.	24% of the total project \$1,797,289
University of Oklahoma, USA Industry sponsor	Testing of centralizer according to API	08/15/2019-11/15/2019	\$13,521	PI	100%
University of Oklahoma, USA Industry sponsor	Testing of cement bonding properties	09/24/2019-06/15/2020	\$44,647	PI	100%
University of Oklahoma, USA Industry sponsor	Drilling vibration and automation experimental setup - Phase 2	11/18/2019-11/19/2020	\$147,146	PI	100%

**Total amount from start-up funds = \$500,000.00**

**Total amount from donations not accounted as awards = \$174,500.00**

**Total amount of awards at OU since 2015 = \$929,836.11**