

# BIGCCS Academia

## Post doctoral researchers with financial support from the Centre budget

Name	M/F	Country	Scientific area	Period	Scientific topic	Main contact
Anwar Bhuiyan	M	Bangladesh	CO <sub>2</sub> storage	2010–2011	Advanced geophysical monitoring	Martin Landrø, NTNU
Hassan Karimaie	M	Iran	CO <sub>2</sub> storage	2010–2012	Experimental studies of diffusion/ convection of CO <sub>2</sub> in aquifers	Ole Torsæter, NTNU
Xiangping Zhang	F	China	CO <sub>2</sub> value chain	2011–2013	Extended value chain analysis of CCS	Truls Gundersen, NTNU
Nousha Kheradmand	F	Iran	CO <sub>2</sub> transport	2012–2013	Coupled structure-fluid model for cracking in pipes	Christian Thaulow, NTNU
Chao Fu	M	China	CO <sub>2</sub> capture	2012–2014	Integrated assessment and oxy-combustion	Truls Gundersen, NTNU
Rahele Farokhpoor	F	Iran	CO <sub>2</sub> storage	2012–2014	Effects of CO <sub>2</sub> on rock properties	Ole Torsæter, NTNU
Vincent Thoréton	M	France	CO <sub>2</sub> capture	2014–2016	Chemical Looping Combustion Technologies	Kjell Wiik, NTNU
Nicolaine Agofack	M	Cameroon	CO <sub>2</sub> storage	2015–2017	Acoustic core measurements and two-phase flow	Rune Holt, NTNU

## PhDs with financial support from the Centre budget

Name	M/F	Country	Scientific area	Period	Thesis title	Main advisor
Alexandre Morin	M	France	CO <sub>2</sub> transport	2009-2012	Mathematical modeling and numerical simulation of two-phase multi-component flows of CO <sub>2</sub> mixtures in pipes	Inge Gran, NTNU
Andrew North	M	USA	CO <sub>2</sub> capture	2010-2013	Experimental investigations of partially premixed hydrogen combustion in gas turbine environments	Robert W. Dibble, UC Berkeley
Don Frederick	M	USA	CO <sub>2</sub> capture	2010-2013	Numerical investigations of a hydrogen jet flame in a vitiated coflow	Jyh-Yuan Chen, UC Berkeley
Georg Baumgartner	M	Germany	CO <sub>2</sub> transport	2010-2014	Experimental investigations of hydrogen flashback behavior in turbulent boundary layers	Thomas Sattelmayer, TUM
Rafael Antonio Sánchez	M	Argentina	CO <sub>2</sub> capture	2010-2014	Modeling and simulations of sorption-enhanced steam methane reforming (SE-SMR) operated in circulating fluidized bed reactors	Atle Hugo Jakobsen, NTNU
Vajiheh Nafisi	F	Iran	CO <sub>2</sub> capture	2010-2014	Development of mixed matrix membranes for carbon dioxide capture	May-Britt Hägg, NTNU
Amir Taheri	M	Iran	CO <sub>2</sub> storage	2010-2015	Study of density-driven-natural-convection (DDNC) mechanism in CO <sub>2</sub> sequestration in heterogeneous and anisotropic brine aquifer	Ole Torsæter, NTNU
Xinzhì Chen	M	China	CO <sub>2</sub> capture	2010-2013	Dense oxygen separation membrane materials - Thermal and chemical expansion of La <sub>1-x</sub> Sr <sub>x</sub> MO <sub>3-d</sub> and tape casting and mechanical properties of La <sub>2</sub> NiO <sub>4+d</sub>	Tor Grande, NTNU
Sissel Grude	F	Norway	CO <sub>2</sub> storage	2010-2014	Geophysical monitoring of CO <sub>2</sub> storage in the subsurface	Martin Landrø, NTNU
Einar Vøllestad	M	Norway	CO <sub>2</sub> capture	2010-2014	Mixed proton electron conducting oxides as hydrogen transport membranes in electrochemical potential gradients	Reidar Haurgsrud, UiO
Xiaoguang Ma	F	China	CO <sub>2</sub> capture	2010-2014	Precipitation in carbon dioxide capture processes	Jens-Petter Andreassen, NTNU
Mansour Soroush	M	Iran	CO <sub>2</sub> storage	2010-2014	Simulation and experimental investigation of different phenomena in CO <sub>2</sub> storage in the saline aquifers	Jon Kleppe, NTNU
Robin Wegge	M	Germany	CO <sub>2</sub> transport	2010-2016	Speed of sound and density measurements of binary, CO <sub>2</sub> -rich mixtures over a wide temperature and pressure range	Roland Span, RUB
Nina Enaasen Flø	F	Norway	CO <sub>2</sub> capture	2011-2015	Modelling and analysis of process dynamics related to post-combustion CO <sub>2</sub> capture	Magne Hillestad, NTNU
Rengarajan Soundararajan	M	India	CO <sub>2</sub> capture	2011-2015	Coal based power plants using oxy-combustion for CO <sub>2</sub> capture: Process integration approach to reduce capture penalty	Truls Gundersen, NTNU
Espen Birger Raknes	M	Norway	CO <sub>2</sub> storage	2011-2015	3D elastic time-lapse full waveform inversion	Børge Arntsen, NTNU
Marcin Dutka	M	Poland	CO <sub>2</sub> capture	2012-2015	Studies of low NO <sub>x</sub> burner technology	Terese Løvås, NTNU
Snorre Foss Westman	M	Norway	CO <sub>2</sub> transport	2013-2016	Experimental investigation of phase equilibria of CO <sub>2</sub> mixtures relevant for CCS	Ivar Ståle Ertesvåg, NTNU
Vera Hoferichter	F	Germany	CO <sub>2</sub> capture	2013-2017	Experimental investigations on the influence of acoustic excitations on flame flashback during premixed hydrogen combustion in a model burner	Thomas Sattelmayer, TUM
Dawid Szewczyk	M	Poland	CO <sub>2</sub> storage	2012-2017	Rock physics and geomechanical aspects of seismic monitoring of CO <sub>2</sub> storage in the subsurface	Rune Holt, NTNU
Gabriel Guerrero Heredia	M	Mexico	CO <sub>2</sub> capture	2014-2017	Novel Hybrid Membranes for Post-Combustion CO <sub>2</sub> Capture	May-Britt Hägg, NTNU

## PhDs without financial support from the Centre budget

Name	M/F	Country	Source of funding	Scientific area	Period	Thesis title	Main advisor
Christian Eichler	M	German	BIGCO2 project	CO <sub>2</sub> capture	2007-2011	Flame flashback in wall boundary layers of premixed combustion systems	Thomas Sattelmayer, TUM
Szczepan P. Polak	M	Poland	BIGCO2 project	CO <sub>2</sub> storage	2007-2014	Laboratory and numerical study of scaling parameters used in modeling of CO <sub>2</sub> storage in rocks	Ole Torsæter, NTNU
Camilla K. Vigen	F	Norway	University of Oslo	CO <sub>2</sub> capture	2009-2014	Novel mixed proton electron conductors for hydrogen gas separation membranes	Reidat Haugsrud, UiO

## PhDs completing their project in 2017-2018

Name	M/F	Country	Scientific area	Period	Thesis title	Main advisor
Sohrab Gheibi	M	Iran	CO <sub>2</sub> storage	2013-2017	Geomechanical Modelling of CO <sub>2</sub> Injection and Storage	Rune Holt, NTNU
Christoph Meraner	M	Germany	CO <sub>2</sub> capture	2015-2018	Investigation of scalability of low NOx combustion technology	Terese Løvås, NTNU

## MSc students with thesis related to CCS

### CO<sub>2</sub> Capture (SP1)

Name	M/F	Country	Semester	Full Title	Supervisor
Helene Østby	F	Norway	Spring 2010	Dynamic modelling and simulation of a CO <sub>2</sub> capture plant	Magne Hillestad
Matthieu Dreillard	M	France	Spring 2010	Energy Considerations around an amine CO <sub>2</sub> capture plant	Magne Hillestad
Vidar Graff	M	Norway	Spring 2011	Degydration and compression of contaminated CO <sub>2</sub> rich gas	Magne Hillestad
June Munkejord	F		Spring 2011	CO <sub>2</sub> capture in solutions with simultaneous precipitation of solids	Jens-Petter Andreassen
Henriette Næss	F	Norway	Spring 2013	New process configurations for post-combustion CO <sub>2</sub> removal	Magne Hillestad
Hilde Bråtveit Ekrheim	F	Norway	Spring 2013	Modeling and model identification of an equilibrium amine system - MEA and MDEA	Hallvard Svendsen
Elisabeth Børde	F	Norway	Spring 2014	CO <sub>2</sub> Capture from cement production	Magne Hillestad
Kine Hammersland	F	Norway	Spring 2014	Energy considerations around an amine CO <sub>2</sub> capture plant	Magne Hillestad
Espen Tjønneland Wefring	M	Norway	Spring 2011	Nano-structuring of oxygen permeable membrane by chemical etching techniques	Kjell Wiik
Julia D. Meyer	F	Norway	Spring 2011	Processing and mech. props. of tape casted films with compositions La <sub>0.2</sub> Sr <sub>0.8</sub> Fe <sub>0.8</sub> Ta <sub>0.2</sub> O <sub>3</sub> as membranes for syngas production	Kjell Wiik
Runar Bøen	M	Norway	Spring 2012	An experimental investigation of co-sintering of oxygen permeable asymmetric membranes with compositions La <sub>0.2</sub> Sr <sub>0.8</sub> Fe <sub>0.8</sub> Ta <sub>0.2</sub> O <sub>3</sub>	Kjell Wiik
Petter Wibe	M	Norway	Spring 2012	Optimisation of strength and permeability of tape castred poous substrates with composition La <sub>0.2</sub> Sr <sub>0.8</sub> Fe <sub>0.8</sub> Ta <sub>0.2</sub> O <sub>3</sub>	Kjell Wiik
Nils Wagner	M	Norway	Spring 2012	Stability and permeation properties of asymmetric La <sub>0.2</sub> Sr <sub>0.8</sub> Fe <sub>0.8</sub> Ta <sub>0.2</sub> O <sub>3</sub> membranes for syngas production	Kjell Wiik

Name	M/F	Country	Semester	Full Title	Supervisor
Dan Lagergren	M	Sweden	Fall 2012	Oxygen permation in optimized, asymmetric LSAI membrane for syn-gas production	Kjell Wiik
Frank Arne Glimastad	M	Norway	Spring 2013	Ceramic materials for oxygen separation membranes	Tor Grande
Silje Kathrin Nesdali	F	Norway	Spring 2013	Development of novel oxides for use in O <sub>2</sub> permeable membranes	Sverre M. Selbach
Belma Talic	F	Serbia	Spring 2013	Oxygen permation in optimized, asymmetric ceramic membranes for syngas production	Kjell Wiik
Birgitte Johannessen	F		Spring 2010	Numerica studies of flame propagation in channel flow	Terese Løvås
Jasmin Birkl	F	Germany	Spring 2011	Implementation and measurements on an exhaust gas analysing system	Anja Marosky / Thomas Sattelmayer
Simon Bless	M	Germany	Fall 2011	Study of Cooling Air Injection at Gas Turbine Combustors with Large Eddy Simulation	Volker Seidel / Thomas Sattelmayer
Balbina Hampel	F	Germany	Spring 2012	Measurement of the Air Excess Ratio of an Auto-Igniting Flame by Means of Spectroscopy	Georg Tautschnig / Thomas Sattelmayer
Kjartan Juul Skarbø	M	Norway	Spring 2013	Operation study of low Nox burner technology	Terese Løvås
Nicolai Austarheim	M	Norway	Spring 2013	DNS simulations of acoustic instabilities in low emission combustion systems	Terese Løvås
Tobias Hummer	M	Germany	Fall 2013	3D conjugate heat transfer analysis of engine cylinder heads	Georg Baumgartner/ Thomas Sattelmayer
Tore Hatleskog Zeiner	M	Norway	Fall 2011	Process Integration Potentials in Coal-based Power Plants	Truls Gundersen
Stian Tangen	M	Norway	Spring 2011	On the solution of the pellet and reactor model for SMR process using the methods of weighted residuals	Hugo A Jakobsen
Mohammad Ostadi	M	Iran	Spring 2013	Surrogatye Models for Integrated Reforming CC Optimization	Rahul Anantharaman
Erik Lien Johnesen	M		Spring 2011	Optimization-based design of an IRCC process	Truls Gundersen
Elmir Susic	M	Croatia	Fall 2012	Utilization of low temperature heat in coal-based power plants with CO <sub>2</sub> capture	Truls Gundersen
Katrin Finke	F	Germany	Fall 2014	Development and validation of a Matlab algorithm to detect flame front from OH-PLIF and PIV images of a turbulent, premixed hydrogen flame	Georg Baumgartner/ Thomas Sattelmayer
Linn-Therese Forthun	F	Norway	Spring 2015	Simulation and model verification of the dynamic and steady state behavior of the CO <sub>2</sub> capture plant at TCM	Magne Hillestad
Severin M. Reiz	M	France	Spring 2015	CFD simulations of low Nox burner	Terese Løvås
Kristin Skrebergene	F	Norway	Spring 2015	New technologies for carbon capture in hydrogen production from fossil fuels	Truls Gundersen
Opeyemi Bamigbetan	M	Nigeria	Spring 2015	A systematic design methodology for multicomponent membrane systems	Truls Gundersen
Gina Plathe Helsing	F	Norway	Spring 2015	Options for carbon capture with storage or reuse in waste incineration processes	Truls Gundersen

## CO<sub>2</sub> Transport (SP2)

Name	M/F	Country	Semester	Full Title	Supervisor
Nicolas Morin	M	France	Fall 2010	Coupled fluid-structure model used for modelling of running fracture in ductile steel pipelines	Håkon Ottar Nordhagen
Gjermund Haug	M	Norway	Spring 2011	Running fracture in a H2 pressurized pipeline: From small scale material testing to full scale experiments and simulations	Håkon Ottar Nordhagen
Steffen Valheim	M	Norway	Spring 2011	Running fracture in a H2 pressurized pipeline: Characterization and simulation of dynamic ductile fracture in two X65 pipeline steels	Håkon Ottar Nordhagen
Alexander Maurer	M	Germany	Spring 2014	Commissioning of a single-sinker densimeter and first measurements in CO <sub>2</sub> rich binary mixtures	Robin Wegge
Aleksander Reinertsen	M	Norway	Spring 2015	Models and numerical methods for two-phase flow of CO <sub>2</sub> in pipes	Svend Tollak Munkejord

## CO<sub>2</sub> Storage (SP3)

Name	M/F	Country	Semester	Full Title	Supervisor
Alberto Perez Garcia	M	Spain	Spring 2010	Capture, transport and storage of CO <sub>2</sub> . Storage cap. study in Spain	Ole Torsæter
Alexander Eilertsen	M		Spring 2011	Dissolution of CO <sub>2</sub> in aquifer due to natural convection	Ole Torsæter
Edyta Haziak	F	Poland	Spring 2011	Theoretical considerations of CO <sub>2</sub> storage capacity in aquifers	Ole Torsæter
Thibaut Forest	M	France	Spring 2012	CO <sub>2</sub> as enhanced oil recovery method	Ole Torsæter
Erik Andreas Westergaard	M	Norway	Spring 2013	Stability analysis of CO <sub>2</sub> - brine immiscible flow in homogeneous core samples	Ole Torsæter
Quentin P. J. Pallotta	M	France	Spring 2013	Study of non-local equilibrium options in reservoir simulation	Ole Torsæter
Hendrik Andre Westervold	M	Norway	Spring 2014	Evaluation and comparison of various miscible CO <sub>2</sub> -EOR methods	Ole Torsæter
Jørgen Stausland	M	Norway	Spring 2014	Generating a regression model proxy for CO <sub>2</sub> storage	Ole Torsæter
Tone Trudeng	F	Norway	Spring 2010	Sensitivity analysis on the detectability of fractures on 2-D seismic: An early warning of CO <sub>2</sub> leakage	Martin Landrø
Sissel Grude	F	Norway	spring 2010	Sea bed diffractions and impact on 4D seismic data	Martin Landrø
Hanne Halvorsen	F	Norway	Spring 2012	Mapping of shallow tunnel valleys combining 2D and 3D seismic data	Martin Landrø
Ole Eiesland	M	Norway	Spring 2012	Estimating sea bed velocities from normal modes	Martin Landrø