

# SEVENTH ANNUAL INTERNATIONAL SOTACARBO SUMMER SCHOOL ON LOW CARBON TECHNOLOGIES CARBONIA, SOTACARBO RESEARCH CENTRE JUNE 10-14, 2019

## PRELIMINARY PROGRAMME

Monday, June 10th, 2019 – Introduction

09:00 Registration

### Opening session

Chairman: Alessandro Lanza (Sotacarbo, Italy)

10:30 Presentation and general introduction

10:50 Welcome speech by Sardinian local authorities

11:10 Word from the H.E. Ambassador for Italy

11:30 Sources of CO<sub>2</sub>, energy balance and CCUS approaches

11:55 International policies on CCUS: SET Plan, CSLF and Mission Innovation

12:20 Lunch

### Session 1: Power generation from biomass

Chairman: Umberto Arena (Vanvitelli University, Italy)

13:30 Power generation from biomass

14:00 Syngas cleaning approaches

14:20 Prospects for bioenergy CCS (BECCS)

14:40 Advanced oxycombustion technology for easy integration of CCS in industrial applications

15:00 Break

15:20 Working Groups

18:00 End of technical activities

19:00 Icebreaker cocktail

Tuesday, June 11th, 2019

### Session 2: CO2 capture technologies

Chairman: Toby Lockwood (IEA Clean Coal Centre, United Kingdom)

09:00 Pre-combustion CO<sub>2</sub> capture: liquid solvents and mineral carbonation

09:30 Post-combustion CO<sub>2</sub> capture technologies

10:00 The potential role of chemical looping, oxy-combustion and S-CO<sub>2</sub> for the reduction of global warmin

10:30 Break

### Session 3: Advanced modeling for gasification and CO2 capture

Chairman: Bhima Sastri (U.S. Department of Energy, USA)

10:50 Multiphase modeling of low carbon energy devices

11:20 Multiscale CFD modeling and validation of reacting gas-solid flows with application to fossil fuel reactors

11:50 Underground coal gasification and CCUS

12:20 Lunch

13:50 The CO<sub>2</sub> Value Europe association

14:10 *Visit to the Sotacarbo platform and labs*

15:10 Break

15:20 Working groups

18:00 End of technical activities

**Alessandro Lanza** (Sotacarbo, Italy)

**Reenat Sandhu**, (Embassy of India to Italy)

**Giorgio Cau** (University of Cagliari, Italy)

**Marcello Capra** (Ministry of Economic Development, Italy)

**Umberto Arena** (Vanvitelli University, Italy)

**Muhammad Farooq** (University of Engineering and Technology Lahore, Pakistan)

**Srinivasaiah Dasappa** (Indian Institute of Science, India)

**Donato Montrone** (Saipem, Italy)

**Aimaro Sanna** (Heriot-Watt University, United Kingdom)

**Toby Lockwood**, IEA Clean Coal Centre, United Kingdom)

**Bhima Sastri** (U.S. Department of Energy, USA)

**Bill Rogers** (National Energy Technology Laboratory, USA)

**Mehrdad Shahnam** (National Energy Technology Laboratory, USA)

**Preeti Aghalayam** (Indian Institute of Technology, India)

**Damien Dellamagne** (CO2 Value Europe, Belgium)

Wednesday, June 12th 2019

### Session 4: CO2 utilization I

Chairman: Manuel Alvarez Guerra (University of Cantabria, Spain)

09:00 CO<sub>2</sub> to liquid fuels: hydrogenation processes

09:30 CO<sub>2</sub> to liquid fuels: electrochemical and photo-electrochemical processes

10:00 CO<sub>2</sub> to chemicals Angela Di Benedetto (University of Bari, Italy)

10:30 Break

### Session 5: CO2 utilization II

Chairman: Flavio Manenti (Politecnico di Milano, Italy)

10:50 Hydrogen production technologies from renewable sources

11:20 CO<sub>2</sub> conversion into high value materials

11:50 Intellectual property and patents

12:20 Lunch

13:50 Working groups

15:00 Touristic tour and dinner

Thursday, June 13th, 2019

### Session 6: CO2 geological storage I – concepts

Chairman: Sallie Greenberg (Illinois State Geological Survey, USA)

09:00 CO<sub>2</sub> magic show

09:30 CO<sub>2</sub> storage: where we are and new challenges

09:45 Site characterization for CCS and trapping mechanisms

10:10 Site monitoring technologies

10:35 Break

### Session 7: CO2 geological storage II – sites

Chairman: Ralf Haese (Peter Cook Centre, University of Melbourne, Australia)

10:50 The relevance of natural labs to test monitoring techniques and ecosystem response

11:20 The role of public in CCS projects: the experience in Decatur

11:50 The Otway project

12:20 Lunch

### ECO-BASE workshop on EOR

Chairman: Roman Berenblyum (IRIS, Norway)

13:50 To be defined

15:00 Break

15:20 Working groups

18:00 End of technical activities

Friday, June 14th, 2019

### Session 8: CCUS economics and legislation

Chairman: Matthias Finkenrath (Kempten University of Applied Science, Germany)

9:00 CCUS: commercial and pilot applications in the world

9:30 CO<sub>2</sub>-free power generation: economic performance

10:00 CCUS: legal issues

10:30 Break

### Session 9: International collaborations on CCUS

Chairman: Sergio Persoglia (CO2GeoNet, France)

10:50 The CO2GeoNet organization

11:20 EERA-CCS

11:50 ECCSEL: the European Carbon Dioxide Capture and Storage Laboratory Infrastructure

12:20 Lunch

13:50 Presentations by the workgroups

15:10 Concluding remarks

15:30 Visit to the Serbariu Old Mine Museum

17:00 End of the School

**Flavio Manenti** (Politecnico di Milano, Italy)

**Manuel Alvarez-Guerra** (Universidad de Cantabria, Spain)

**Jesús Rodríguez Ruiz** (Centro Nacional del Hidrógeno, Spain)

To be confirmed

**Alessandro Leganza** (Venice IP, Italy)

**Andrew Feitz** (CO2CRC, Australia) and **Sallie Greenberg** (Illinois State Geological Survey)

**Sergio Persoglia** (GO<sub>2</sub>GeoNet, France)

**Ralf Haese** (Peter Cook Centre, University of Melbourne, Victoria, Australia)

To be confirmed

**Michela Vellico and Cinzia De Vittor** (OGS, Italy, and ECCSEL-ERIC)

**Sallie Greenberg** (Illinois State Geological Survey, Illinois, USA)

**Andrew Feitz** (CO2CRC, Australia)

To be confirmed

**Matthias Finkenrath** (Kempten University of Applied Sciences, Germany)

**Ada Gimnes Jarøy** (IOM Law, Norway)

To be confirmed CO2GeoNet, France)

To be confirmed (CO2GeoNet, France)

**Sverre Quale** (ECCSEL-ERIC, Norway)

**Alessandro Lanza**