

# **Selection of Topics for Presentation in the Lecture "Economic Optimization" - SS2020**

## **Gas Turbines**

1. A Study of Humidified Gas Turbines for Short-Term Realization in Midsized Power Generation – Part 1 (2005)
2. Performance Benefits Using Siemens Advanced Compressor Cleaning System (2004)
3. Performance comparison of three solid oxide fuel cell power systems (2013)
4. An optimal configuration for a solid oxide fuel cell-gas turbine (SOFC-GT) hybrid system based on thermo-economic modelling (2017)

## **Steam Plants**

5. Interne Zusatzfeuerung (2003)
6. Enhancement of the Electrical Efficiency of Commercial Fuel Cell Units by Means of an Organic Rankine Cycle: A Case Study (2013)

## **Combined Cycle Plants**

7. A Comparative Evaluation of Advanced Combined Cycle Alternatives (1991)
8. Ertüchtigung bestehender Dampfkraftwerke durch Gasturbinen (1998)

## **Economic Optimisation**

9. Primärenergieeinsparung dezentraler Blockheizkraftwerke im Vergleich zu GuD-Kraftwerken unter Berücksichtigung überregionaler Versorgungsaufgaben (2012)

## **Carbon Capture and Storage**

10. Evaluation of Design Performance of the Semi-Closed Oxy-Fuel Combustion Combined Cycle (2012)
11. Zero CO<sub>2</sub> emission SOLRGT power system (2012)
12. Adapting the zero-emission Graz Cycle for hydrogen combustion and investigation of its part load behavior (2018)
13. Thermodynamic Analysis of Zero-Atmospheric Emissions Power Plant
14. Optimization of Thermodynamically Efficient Nominal 40 MW Zero Emission Pilot and Demonstration Power Plant in Norway
15. Demonstration of the Allam Cycle: An update on the development status of a high efficiency supercritical carbon dioxide power process employing full carbon capture (2017)
16. A modified Allam cycle without compressors realizing efficient power generation with peak load shifting and CO<sub>2</sub> capture (2019)
17. Thermodynamic optimization and equipment development for a high efficient fossil fuel power plant with zero emissions (2019)
18. Advanced Zero Emissions Gas Turbine Power Plant
19. Proposal and Analysis of a Novel Zero CO<sub>2</sub> Emission Cycle With Liquid Natural Gas Cryogenic Exergy Utilization

20. Chemical Looping Combustion – Analysis of Natural Gas Fired Power Cycles With Inherent CO<sub>2</sub> Capture
21. CO<sub>2</sub> capture from power plants Part I. A parametric study of the technical performance based on monoethanolamine (2007)
22. CO<sub>2</sub> capture from power plants Part II. A parametric study of the economical performance based on mono-ethanolamine (2007)
23. Performance and Cost Analysis of a Novel Gas Turbine Cycle With CO<sub>2</sub> Capture (2007)
24. Energy and exergy analyses for the carbon capture with the Chilled Ammonia Process (CAP) (2009)
25. Quantitative evaluation of the chilled-ammonia process for CO<sub>2</sub> capture using thermodynamic analysis and process simulation (2010)
26. Exergetic comparison of CO<sub>2</sub> capture techniques from solid fossil fuel power plants (2016)
27. Techno-economic evaluation of the evaporative gas turbine cycle with different CO<sub>2</sub> capture options (2012)
28. Analysis of Gas-Steam Combined Cycles With Natural Gas Reforming and CO<sub>2</sub> Capture
29. CO<sub>2</sub> Emission Abatement in IGCC Power Plants by Semiclosed Cycles: Part A – With Oxygen Blown Combustion
30. CO<sub>2</sub> Emission Abatement in IGCC Power Plants by Semiclosed Cycles: Part B – With Air Blown Combustion and CO<sub>2</sub> Physical Absorption
31. Thermodynamic Performance of IGCC with Oxy-Combustion CO<sub>2</sub> Capture
32. Overall environmental impacts of CCS technologies—A life cycle approach (2012)
33. Ökobilanz und externe Kosten zukünftiger fossiler Stromerzeugungstechnologien mit CO<sub>2</sub>-Abscheidung und Speicherung

## **Renewables**

34. Analysis of the Conversion of Ocean Wind Power into Hydrogen (2013)
35. MPC for airborne wind energy generation (2013)
36. Detailed Modeling of Parabolic Trough Collectors for the Part Load Simulation of Solar Thermal Power Plants (2012)
37. Performance Analysis of OTEC Plants With Multilevel Organic Rankine Cycle and Solar Hybridization (2013)
38. Wege zur nachhaltigen Energieversorgung – Herausforderungen an Speicher und thermische Kraftwerke (2012)
39. Wasserstoff – Das Speichermedium für erneuerbare Energien (2012)
40. Druckluftspeicherkraftwerk mit Dampfkreislauf (2016)
41. Thermodynamic Analysis of a Novel Cryogenic Rankine Cycle for Wind Energy Storage (2012)
42. Wirtschaftliche Bewertung von Stromspeichertechnologien (2012)