PERSONAL INFORMATION

CIURLUINI CRISTIANO

WORK EXPERIENCE

Feb.-Oct. 2018

Sapienza University of Rome **Rome**

Term contract as researcher with Department of Astronautic, Electrical and Energy Engineering (DIAEE) of Sapienza University of Rome. Research activity focused on the preparation, validation and documentation of the thermal-hydraulic model of PHENIX reactor for the best estimate system code RELAP5 3-D.

EDUCATION AND TRAINING

Nov. 2018 - ongoing

Sapienza University of Rome **Rome**

PhD in ''Energy and Environment''. Research activity focuses on the design and thermal-hydraulic transient analysis of fission and fusion nuclear reactors of new generation. In particular, sodium and lead fast reactors (FFTF and ALFRED) and nuclear fusion reactors (ITER and DEMO).

Oct. 2012 – Jan. 2018

Sapienza University of Rome **Rome**

- Bachelor's degree in Energy Engineering with the academic record of 110/110 cum laude, discussing the thesis "Confronto tra i principali modelli di simulazione del fenomeno di esplosione di gas";

- Master's degree in Energy and Nuclear Engineering with the academic record of 110/110 cum laude, discussing the thesis "DEMO Primary Heat Transfer System and Balance of Plant: thermal hydraulic design and simulations using Relap-5 code". **Taken Exams**: Fluidodinamica 30/30 (Prof. Giovanni Paolo Romano); Principi di Fisica Atomica e Nucleare 28/30 (Prof. Stefano Atzeni); Fisica dei Plasmi 30/30 (Prof. Stefano Atzeni and Angelo Schiavi); Impianti Nucleari 30/30 cum laude (Prof. Gianfranco Caruso); Misure e Caratterizzazione dei Materiali Nucleari 29/30 (Prof. Romolo Remetti); Elementi di Impianti e Centrali Elettriche 30/30 (Prof. Fabio Massimo Gatta); Ingegneria del Nocciolo 30/30 cum laude (Prof. Renato Gatto and Augusto Gandini); Radioprotezione 30/30 cum laude (Prof. Romolo Remetti); Centrali Termiche 30/30 (Prof. Giovanni Molinari); Fluidodinamica Sperimentale 29/30 (Prof. Giovanni Paolo Romano); Macchine Elettriche 30/30 (Prof. Ezio Santini).

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B2	C1
French	B2	B2	B2	B2	B2

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

- Microsoft Office suite proficient user (word processor, spread sheet, presentation software)
- Proficient user of the best-estimate system thermal-hydraulic RELAP5 codes (RELAP5 Mod3.3 and RELAP5-3D). Four years of experience.
- MATLAB© proficient user

INTERNSHIPS

Jul. 2017 — **Research Center of ENEA Brasimone** — **Camugnano**

Internship in Fusion reactor design and simulation with RELAP5 code

NON CURRICULAR EXPERIENCE

Sept.2012 - Jul. 2017 — **College Lamaro Pozzani (Federazione Nazionale Cavalieri del Lavoro)** — **Rome**

This College, funded and financed by the Federazione Nazionale Cavalieri del Lavoro, hosts excellent students selected with strict criteria. During the university career, they must additionally attend lectures on business, economics and corporate law. There are ten modules of lectures, each one followed by an exam. The entire course is named 'Corso di cultura per l'impresa Gaetano Marzotto'. Furthermore, English lectures are foreseen each year.

- 'Corso di cultura per l'impresa Gaetano Marzotto'
  Ottimo cum Laude

FURTHER INFORMATION

Papers

1. E. Martelli et al., Thermal-hydraulic modeling and analyses of the water-cooled EU DEMO using RELAP5 system code, Fusion Eng. Des., 146, 2019, 1121-1125. https://doi.org/10.1016/j.fusengdes.2019.02.021.

2. C. Ciurluini et al., Thermal-hydraulic modeling and analysis of the Water Cooling System for the ITER Test Blanket Module. Fusion Eng. Des. 158, 2020, 111709. https://doi.org/10.1016/j.fusengdes.2020.111709.

3. C. Ciurluini et al., Preliminary neutron kinetic – thermal-hydraulic coupled analysis of the ALFRED reactor using PHISICS/RELAP5-3D. J. Phys. Conf. Ser. 1599, 2020, 012023. https://doi.org/10.1088/1742-6596/1599/1/012023.

4. C. Ciurluini et al., Analysis of the thermal-hydraulic behavior of the EU-DEMO WCLL Breeding Blanket cooling systems during a Loss Of Flow Accident. Fusion Eng. Des., 164, 2021, 112206. https://doi.org/10.1016/j.fusengdes.2020.112206.

5. A. Tincani et al., Conceptual design of the main Ancillary Systems of the ITER Water Cooled Lithium Lead Test Blanket System. Fusion Eng. Des. 167, 2021, 112345. https://doi.org/10.1016/j.fusengdes.2021.112345.

6. C. Ciurluini et al., Study of the EU-DEMO WCLL Breeding Blanket Primary Cooling Circuits Thermal-Hydraulic Performances during Transients Belonging to LOFA Category. Energies, 14(6), 2021, 1541. https://doi.org/10.3390/en14061541.

7. C. Ciurluini et al., Conceptual design overview of the ITER WCLL Water Cooling System and supporting thermal-hydraulic analysis. Fusion Eng. Des. 171, 2021, 112598. https://doi.org/10.1016/j.fusengdes.2021.112598.

Technical Reports

1. A. Tincani, A. Aiello, M. Utili, M. Bruzzone, V. Pierantoni, G. Di Gironimo, F. Giannetti, C. Ciurluini, E. Garrone, R. Forte, P. A. Di Maio, G. Caruso, Technical note accompanying the reviewed versions of the ISs and ICDs supplied by F4E for PART B, EUROfusion Internal Deliverable EFDA_D_2NKBXU, December 2018.

2. C A. Tincani, A. Aiello, A. Tarallo, F. Giannetti, C. Ciurluini, E. Garrone, M. Bruzzone, M. Utili, V. Pierantoni, R. Forte, P. A. Di Maio, Technical note accompanying the Process Flow Diagrams of the four main WCLL TBS ancillary systems, EUROfusion Internal Deliverable EFDA_D_ 2NJ3WE, December 2018.

3. A. Tincani, R. Forte, C. Ciurluini, F. Giannetti, E. Garrone, M. Bruzzone, K. Abraham, V. Pierantoni, P. Arena, A. Tarallo, WCLL-TBS System Design Description Document - part on the four main Ancillary Systems, EUROfusion Internal Deliverable EFDA_D_ 2NTPVX, January 2019.

4. A. Tincani, R. Forte, P. A. Di Maio, C. Ciurluini, M. Palmero, A. Tarallo, F. Giannetti, E. Garrone, M. Bruzzone, Technical Report describing the Preliminary System Load Specification of the four main WCLL TBS Ancillary Systems, EUROfusion Internal Deliverable EFDA_D_ 2NHPBE, January 2019.

5. C. Ciurluini, F. Giannetti, F. Paoletti, M. Bruzzone, V. Pierantoni, E. Garrone, R. Forte, P. A. Di Maio, I. Catanzaro, A. Tarallo, R. Mozzillo, P. Arena, M. Utili, A. Tincani, L. Gramiccia, A. Del Nevo, Technical Report on the main components sizing and ESP/ESPN Classification - part on the main Ancillary Systems, EUROfusion Internal Deliverable EFDA_D_2NW57H, December 2019.

6. A. Tincani, A. Del Nevo, M. Utili, F. Paoletti, C. Ciurluini, M. Bruzzone, V. Pierantoni, G. Di Gironimo, F. Giannetti, E. Garrone, R. Forte, P. A. Di Maio, G. Caruso, A. Tarallo, R. Mozzillo, C. Tripodo, D1.3 Management of technical interfaces, EUROfusion Internal Deliverable EFDA_D_ 2NTZWY, February 2020.

7. A. Tincani, F. Paoletti, M. Granieri, M. Utili, A. Del Nevo, A. Tarallo, F. Giannetti, C. Ciurluini, E. Garrone, M. Bruzzone, V. Pierantoni, R. Forte, P. A. Di Maio, M. Frullini, M. Corcione, R. Mozzillo, M. Valdiserri, Technical note accompanying the Process Flow Diagrams of the four main WCLL TBS ancillary systems, EUROfusion Internal Deliverable EFDA_D_ 2NQ9ML, March 2020.

8. A. Del Nevo, M. Eboli, P. Arena, A. Tincani, F. Giannetti, C. Ciurluini, G. Caruso, Identification and description of the safety functions for WCLL-TBS reference accidents, EUROfusion Internal Deliverable EFDA_D_ 2NRJWW, April 2020.

9. A. Tincani, P. Arena, R. Forte, I. Catanzaro, C. Ciurluini, V. Narcisi, F. Giannetti, G. Caruso, M. Frullini, F. Paoletti, M. Bruzzone, K. Abraham, V. Pierantoni, A. Tarallo, M. Utili, P. A. Di Mai, A. Del Nevo, N. Jayasekera, E. Walcz, B. Lesko, C. Tripodo, S. Lorenzi, R. Mozzillo, G. P. Siri, SDD, integrated form ready for CDR, EUROfusion Internal Deliverable EFDA_D_ 2NBHVB, June 2020.

10. F. Giannetti, V. Narcisi, C. Ciurluini, F. Peruzzini, L. Gramiccia, M. Frullini, G. Caruso, A. Tincani, A. Del Nevo, Thermohydraulic analyses of WCS, CPS, Pb-Li loop, TRS: Methodology and Results, EUROfusion Internal Deliverable EFDA_D_ 2P99TK, July 2020.

11. A. Tincani, M. Caramello, R. Forte, I. Catanzaro, P. A. Di Maio, C. Ciurluini, V. Narcisi, F. Giannetti, F. Paoletti, M. Frullini, G. Caruso, R. Mozzillo, P. Arena, A. Tarallo, M. Utili, A. Del Nevo, E. Garrone, Technical Report describing the Preliminary System Load Specification of the WCLL TBS Ancillary Systems, EUROfusion Internal Deliverable EFDA_D_ 2P4BCD, July 2020.

12. V. Narcisi, C. Ciurluini, F. Giannetti, A. Del Nevo, WCLL BB PHTS DDD (Direct Coupling Option with Small ESS), EUROfusion Internal Deliverable EFDA_D_ 2NURWJ, May 2020.

13. C. Ciurluini, F. Giannetti, L. Gramiccia, M. Frullini, A. Del Nevo, EXTRA - WCLL BB PHTS best estimate transient analyses in support of Breeding Blanket design, EUROfusion Internal Deliverable EFDA_D_2PCDP3, July 2020.

14. C. Ciurluini, F. Giannetti, G. Caruso, A. Del Nevo, Review & finalization of WCLL PHTS&PCS design x G1 - 2020, EUROfusion Internal Deliverable EFDA_D_ 2MXEWW, October 2020.

15. C. Ciurluini, F. Giannetti, L. Gramiccia, M. Frullini, V. Narcisi, L. Melchiorri, G. Caruso, P. Arena, I. Di Piazza, A. Del Nevo, Analyses of WCLL BB design performances in transient conditions: Decrease in Coolant System Flow Rate, EUROfusion Internal Deliverable EFDA_D_ 2MZ5MS, December 2020.

16. A. Del Nevo, P. Arena, A. Allio, R. Burlon, A. Cammi, T. Carnicella, G. Caruso, I. Catanzaro, C. Ciurluini, G. Di Gironimo, P.A. Di Maio, I. Di Piazza, M. Eboli, F. Edemetti, F. Galleni, M. Moscardini, N. Forgione, R. Forte, F. Giannetti, M. Giardina, V. Imbriani, F. Moro, R. Mozzillo, S. Noce, L. Savoldi, S. Siriano, A. Tassone, E. Tomarchio, C. Tripodo, R. Villari, WCLL BB design and Integration studies 2020 activities, EUROfusion Internal Deliverable EFDA_D_ 2NTP7J, December 2020.

Conferences

- 38th UIT International Conference, June 21-22, 2021, 100% online.
- 31st Symposium on Fusion Technology, September 20-25, 2020, Virtual Edition.
- 14th International Symposium on Fusion Nuclear Technology, September 22-27, 2019, Budapest, Hungary.
- 37th UIT Heat Transfer Conference, June 24-26, 2019, Padova, Italy.

Projects

- Euratom research and training programme, Horizon 2020 (2017-2020): EUROfusion Consortium research activities. In particular:
  - Work Package (WP) Plant Level System Engineering, Design Integration and Physics Integration.
  - Work Package Balance of Plant.
  - Work Package Breeding Blanket.

  In the framework of these WPs, sizing activities and thermal-hydraulic simulations were performed to support the pre-conceptual and conceptual design of ITER WCLL-TBS and DEMO WCLL BB and BOP.
- IAEA CRP I32011 (2018-ongoing). The benchmark analysis involves the simulation of a Loss of Flow Without Scram test performed at the Fast Flux Test Facility reactor. FFTF was a loop-type sodium fast reactor prototype.

Rome, October 20, 2021