

CURRICULUM VITAE

Dr. Claudia Dessì

Date of birth: 08.08.1986

Nationality: Italian

EDUCATION

Jun 2012 – Jan 2016:

PhD in Material Science: Linear and nonlinear rheology of heterogeneous polymeric systems: thermoplastics elastomers and nanocomposites, University of Crete, Heraklion (Crete), Greece.

Sep 2008 - Feb 2011:

Master Science in Chemical and Process Engineering: Effects of molecular weight distribution on mechanical properties of elastomers for tires, University of Cagliari, Cagliari (CA), Italy. Final Grade: 109/110.

Sep 2005 - Dec 2008:

Bachelor in Chemical and Process Engineering: Analysis and control of FCC (Fluid Catalytic Cracking), University of Cagliari, Cagliari (CA), Italy, Final Grade: 107/110.

Work experience

Jan 2018 – Sep 2019:

Postdoctoral Project at Georgetown University sponsored by Infineum International Limited – Macrostructure aggregates in dilute polymer solution: A light scattering study of 4-aminodiphenylamine functionalized polystyrene and polyisoprene block copolymers.

Feb 2016 – Dec 2017:

Postdoctoral Project at Georgetown University sponsored by John Templeton Foundation – Confocal rheology study of kinesin-driven microtubule suspensions.

Jun 2014 – Dec 2014:

PhD Project at FORTH IESL Institute sponsored by Michelin SCA – Rheology investigation of cross-linking density for partially reticulated styrene-butadiene rubbers.

Jun 2012 – Jun 2013:

PhD Project at FORTH IESL Institute sponsored by Eni Versalis S.p.a, – Large amplitude deformation of polymer based materials: New experimental methods and predictors for applicative properties.

Sep 2010 – Nov 2010:

Internship at Eni Versalis S.p.a (Department of Physical and Structural Properties of Elastomers), Ravenna (RA), Italy.

Sep 2008 – Oct 2008:

Internship at Saras Research and Technology S.p.a. – SARTEC S.p.a at the Automation Division, Assemini (CA), Italy.

AREAS OF EXPERTISE

- Shear and Extensional Bulk Rheology
- Polymer Nanocomposites
- Polymer Networks and Rubbers
- Torsional Rheology
- Large Amplitude Oscillatory Shear and Extension
- Soft Matter Physics
- Active Matter Physics
- Confocal Microscopy Imaging
- Dynamic light scattering

RESEARCH INTERESTS

- Tailoring flow of soft matter
- Elastomers and Crosslinking mechanisms
- Particle-Polymer interactions in nanocomposites
- Corneal tissue properties and dynamics
- Active matter flow dynamics
- Rod-like particles diffusional dynamics
- Lubricants and polymer additives

LANGUAGES

Italian: Fluent (Native language)

English: Fluent (oral and written)

PUBLICATIONS

1. **DESSI C.**, TSIBIDIS G. D., VLASSOPOULOS D., DE CORATO M., TROFA M., D'AVINO G., MAFETTONE P. L., COPPOLA S. - Analysis of dynamic mechanical response in torsion, **Journal of Rheology**, 60, 275-287 (2016).
2. GEORGOUDIS P., **DESSI C.**, CHARALAMBIDIS G., ASLANIDES I. M., VLASSOPOULOS D., COUTSOLELOS A. G., KYMIONIS G., MUKHERJEE A., KITSOPOULOS T. N. - Assessment of UVA-Riboflavin Corneal Cross-Linking Using Small Amplitude Oscillatory Shear Measurements, **Invest Ophthalmol Vis Sci. (IOVS)**, 57, 2240-2245.
3. BAEZA G. P., **DESSI C.**, COSTANZO S., ZHAO D., GONG S., ALEGRIA A., COLBY R. H., RUBINSTEIN M., VLASSOPOULOS D., KUMAR S. K. - Network dynamics in nanofilled polymers, **Nature Communications**, 7:11368 (2016).
4. **DESSI C.**, VLASSOPOULOS D., SAENGOW C., GIACOMIN A. JEFFREY – Elastomers in large-amplitude oscillatory uniaxial extension, **Rheologica Acta**, 56, 955-970 (2017)
5. **DESSI C.**, CHARALAMBIDIS G., GEORGOUDIS P., ASLANIDES I. M., KYMIONIS G., KITSOPOULOS T. N., VLASSOPOULOS D. SYKAKIS E., COUTSOLELOS A. G.

- Corneal collagen cross-linking tetra-meso-substituted zinc porphyrin as a photosensitizer to increase corneal stiffness, **Current eye research** - under review (2019)
6. **DESSI C.**, GAGNON D. A., BEREZNEY J., BOROS R., DOGIC Z., BLAIR D. - From self-yielding to solidification: How extensile active gels tune their response to shear, in preparation

CONFERENCES

Presenting author

1. **C. Dessi**, S. Coppola, F. Bacchelli, M. Grosso - Viscoelasticità e struttura molecolare di elastomeri dalla sintesi alla vulcanizzazione, ATTI DEL XII Convegno Nazionale, July 2012, Ustica, Italy
2. **C. Dessi**, D. Vlassopoulos - Rheological protocols for probing filled elastomers, DYNACOP Final Conference Dynamics of Architecturally Complex Polymers: Current and Future Trends, December 2012, Leeds, UK
3. **C. Dessi**, M. Wilhelm, D. Vlassopoulos - Large Amplitude Oscillatory Extension of Silica Filled Rubbers, HSR 2014 7th International Meeting of the Hellenic Rheology Society, 7-10th July 2014, Heraklion (Crete), Greece
4. **C. Dessi**, G. D. Tsibidis, D. Vlassopoulos, M. De Corato, M. Trofa, G. D'Avino, P. L. Maffettone, S. Coppola - Analysis of dynamic mechanical response in torsion, 10th Annual European Rheology Conference, April 2015, Nantes, France
5. **C. Dessi**, G. P. Baeza, D. Zhao, S. K. Kumar, D. Vlassopoulos - Linear and Non-linear Shear Rheology of Silica-filled P2VP Nanocomposites, A Special Rheology Symposium in honor of Professor Roger I. Tanner, June-July 2015, Vathi, Samos, Greece
6. **C. Dessi**, D. Vlassopoulos, M. Wilhelm – Large Amplitude Oscillatory Extension on Silica-filled Styrene-Butadiene Rubbers, International Conference Rheology (ICR) meeting, August 2016, Kyoto, Japan
7. **C. Dessi**, D. Chen, Z. Dogic, D. Blair - Active-to-Passive Transitions in Microtubule based Biopolymer Gels, Society of Rheology meeting, February 2017, Tampa (FL), USA

8. **C. Dessi**, D. Chen, Z. Dogic, D. Blair – Mechanics of active microtubules gels: Can confinement determine elasticity?, APS March meeting, March 2017, New Orleans (LA), USA
9. **C. Dessi**, D. A. Gagnon, Z. Dogic, D. Blair – Activity modifies shear-thinning rheology in dilute suspensions of kinesin-driven microtubules, AERC meeting, April 2018, Sorrento, Italy
10. **C. Dessi**, D. A. Gagnon, J. P. Berezney, D. T.-N. Chen, R. Boros, Z. Dogic, D. L. Blair – Shear induced gelation of self-yielding active networks, SOR meeting, October 2019, Raleigh (NC), USA

Contribution presented by Co-authors

11. F. Bacchelli, S. Coppola, **C. Dessi** - Bridging the gap between raw polymer viscoelasticity and post-cure properties of rubber compounds, KHK 9th Fall Rubber Colloquium, November 2010, Hannover, Germany
12. S. Coppola, F. Bacchelli, **C. Dessi**, L. Vitalini Sacconi, M. Grosso - Bridging the gap between structure and viscoelastic behavior of elastomers from uncured to cured state, Advances in Polymer based Materials and Related Technologies (AIMAT) 2011, May - June 2011, Capri (Na), Italy
13. S. Coppola, **C. Dessi**, F. Bacchelli, M. Grosso - Molecular architecture and mechanical properties of elastomers for tyres, Conference “Giornata AIM-Macrogiovani”, February 2012, Milan, Italy
14. S. Coppola, **C. Dessi**, F. Bacchelli, M. Grosso - Bridging The Gap Between Structure And Viscoelastic Behaviour Of Elastomers From Uncured To Cured State, XVIth International Congress on Rheology, August 2012, Lisbon, Portugal
15. G.P. Baeza, **C. Dessi**, D. Zhao, A. Alegria, D. Vlassopoulos, S. K. Kumar - Dynamic Fragile-to-Strong Transition in Filled Polymer, Structure and dynamics of Polymer Nanocomposites International Workshop, June 2015, Montpellier, France
16. G.P. Baeza, **C. Dessi**, D. Zhao, A. Alegria, D. Vlassopoulos, S. K. Kumar - Dynamic Fragile-to-Strong Transition in Filled Polymer, A Special Rheology Symposium in honor of Professor Roger I. Tanner, June 2015, Vathi, Samos, Greece
17. David A. Gagnon, **C. Dessi**, Z. Dogic, D. Blair – Rheology and dynamics of active microtubule networks, APS Division of Fluid dynamics meeting, November 2018, Atlanta (GA), USA

CURRENT SCIENTIFIC COLLABORATORS

- Dr. Salvatore Coppola, Depart. of Physical and Structural Properties of Elastomers – Eni Versalis, Ravenna, Italy
- Dr. Massimiliano Grosso, Depart. of Mechanical, Chemical and Materials Engineering, University of Cagliari, Cagliari, Italy
- Professor Pier Luca Maffettone, Depart. of Chemical Engineering, Materials and Industrial Production, University of Naples “Federico II”, Naples, Italy
- Professor A. Jeffrey Giacomin, Depart. of Chemical Engineering, Queen's University, Kingston, Canada
- Professor Ralph H. Colby, Depart. of Materials Science and Engineering, Pennsylvania State University, Pennsylvania, United States
- Professor Sanat K. Kumar, Depart. of Chemical Engineering, Columbia University, New York, United States
- Professor Dimitris Vlassopoulos, Depart. of Materials Science and Technology, University of Crete, FORTH-IESL, Crete, Greece
- Professor Daniel Blair, Depart. of Physics, Georgetown University, Washington (DC), USA
- Professor Peter D. Olmsted, Depart. of Physics, Georgetown University, Washington (DC), USA

REFERENCES

- i. Prof. Dimitris Vlassopoulos, University of Crete, FORTH-IESL, Greece
- ii. Prof. A. Jeffrey Giacomin, Queen’s University, Canada
- iii. Prof. Peter D. Olmsted, Georgetown University, USA