

I am an **early career fellow** at the Institute of Advanced Study and **research assistant** in the Sustainable Materials and Manufacturing Group of WMG Department, University of Warwick (UK). My areas of research and expertise include Life Cycle Sustainability Assessment, Multiple Criteria Decision Aiding/Analysis (MCDA) framework, methods and software and responsible development of nanotechnology, having studied and worked in these areas since 2005.

Research methods include: Literature reviews; Problem structuring and preferences' elicitation through face-to-face interviews and surveys; Application of models for sustainability assessment criteria evaluation.

Analysis of data: MCDA methods from the three main families: i.e. Value/Utility Theory, Outranking (e.g. ELECTRE, PROMETHEE), Decision rules (e.g. rough set approaches); Predictions based on expert knowledge and modeling; Statistical analyses (e.g. reliability, relative importance, regression models, uncertainty and sensitivity analysis); Literature reviews.

I structured and bring forward my interdisciplinary research through **international collaborations** with experts in the areas of sustainability assessment and decision analysis/aiding, among which the **(i)** Sustainable Technology Division of the US Environmental Protection Agency in Cincinnati (USA), the **(ii)** Health Technology Assessment Division of the World Health Organization in Geneva (Switzerland), the **(iii)** Bio-Economy Unit of the Joint Research Centre, European Commission - Directorate D - Sustainable Resources in Ispra (Italy), the **(iv)** Laboratory of Intelligent Decision Support Systems of the Poznan University of Technology (Poland), the **(v)** Department of Logics in Uses, Social Sciences and Information Science of Telecom Bretagne University in Brest (France), the **(vi)** Institute of Environmental Science at Leiden University (The Netherlands) and the **(vii)** sustainability and software consulting company GreenDelta in Berlin (Germany).

Sustainability Assessment & Multiple Criteria Decision Analysis/Aiding (MCDA) Experience

Visiting Scientist (self-created collaboration)

Aug 2016 – Present

Joint Research Centre, European Commission - Directorate D - Sustainable Resources, Bio-Economy Unit, Ispra (IT) (with Dr. Serenella Sala)

- Development of a weighting scheme for life cycle impact assessment categories in the Environmental Product Footprint methodology, based on MCDA
- Creation of a research agenda of key challenges to be tackled to maximize the practical use of life cycle assessment in the context of European Commission's Better Regulation package

Early Career Fellow

Apr 2016 – Present

Institute of Advanced Study - University of Warwick, Coventry (UK)

- Use of MCDA to perform sustainability assessments of products/process systems (in collaboration with the U.S. Environmental Protection Agency and the Institute of Computing Science in Poland)
- Creation of a network of sustainability and decision support analysts to advance the scientifically meaningful use of MCDA in sustainability research

Research Assistant

Apr 2016 – Present

WMG Department - University of Warwick, Coventry (UK)

- Development of life cycle sustainability assessment capabilities within the Sustainable Materials and Manufacturing research group at WMG Department
- Environmental impact assessment of silver nanoparticles synthesis and comprehensive evaluation based on stochastic MCDA
- Development of a decision support model for materials management - Criticality evaluation based on economic importance and vulnerability criteria

Visiting Scientist (self-created collaboration as part of Ph.D.)

Jul 2014 – Nov 2014

U.S. Environmental Protection Agency, Cincinnati, OH (USA) (with Dr. Rajender Varma)

- Development of a classification model for synthesis processes of silver nanoparticles based on green chemistry principles implementation

Visiting Scientist (self-created collaboration as part of Ph.D.)

May 2014 – Jun 2014

Institute of Computing Science - Poznan University of Technology, Poznan (Poland) (with Prof. Roman Słowiński)

- Training in Multiple Criteria Decision Aiding methods to develop decision support models for sustainability assessments
- Development of classification model based on MCDA for workers' safety management during nanomaterials synthesis

Research Assistant (departmental agreement as part of Ph.D.)**May 2014 – Nov 2014***WMG Department - University of Warwick, Coventry (UK)*

- Planned and administered the international research collaborations in Poland and USA as above
- Collaboration management with Sustainable Nanotechnology Organization (USA) to foster responsible nanotechnology

Term-contract Researcher**Jul 2012 – Sep 2012***Veneto Nanotech, Padua (Italy)*

- Co-developed model based on MCDA for exposure management to nanomaterials in the workplace

Trainee**Aug 2011 – Jun 2012***Department of Environmental Sciences - University Ca' Foscari, Venice (Italy)*

- Collaborated in the development of a decision support approach to perform risk assessment of nanomaterials

Education & Training**13th Decision Deck Workshop****14 Oct 2016***CentraleSupélec, Paris (FR)*

- Construction of MCDA models with *diviz* platform
- Integration of MCDA and data from Geographical Information Systems (GIS)

Life Cycle Thinking Training**3 Oct 2016***European Commission, Joint Research Centre, Ispra (IT)*

- Use of life cycle-based methods for development and impact assessment of policies
- Working procedure and implementation of Life Cycle Assessment and related methods

14th JRC Annual Training on Composite Indicators & Scoreboards**26-29 Sep 2016***European Commission, Joint Research Centre, Ispra (IT)*

- Concepts of composite indicators and scoreboards, similarities and differences, strengths and weaknesses, policy uses
- Guidelines and examples on shaping the theoretical framework, implications of the methodological choices
- Excel-based tool for assessing a composite indicator or scoreboard, with focus on conceptual and statistical coherence

Ph.D. Engineering**Oct 2012 – Jul 2016***WMG Department - University of Warwick, Coventry (UK)*

- Thesis title: "Advancing Sustainable Nanotechnology with Multiple Criteria Decision Aiding"
- Development of comprehensive set of sustainability assessment criteria for nanoproducts
- Development of classification models based on MCDA to evaluate the implementation of green chemistry principles in the synthesis of silver nanoparticles processes

Postgraduate Certificate in Transferable Skills in Science**Oct 2012 - Oct 2015***University of Warwick, Coventry (UK)*

- 3-year programme with 6 modules: Research skills 1-3; Project Management; Team working; Science Communication

11th MCDA/M Summer School**22 Jul 2013 – 2 Aug 2013***Helmut-Schmidt University, Hamburg (Germany)*

- State-of-the-art of multiple criteria methods, applications and software
- Analysis and discussion of applications of MCDA to complex and real life evaluation situations

M.Sc. - Master Degree in Environmental Sciences - University Ca' Foscari, Venice (Italy)**Sep 2009 – Jun 2012**

- *Curriculum*: Sustainable Development
- *Dissertation*: Risk Assessment of Engineered Nanomaterials. Case Study: A Multiple Criteria Decision Aiding-based Model for Ranking and Prioritization of Occupational Exposure Scenarios to Nanomaterials (*110/110 with honors*)

Exchange programme within the Master Degree - Hiroshima University, Hiroshima (Japan)**Apr 2010 – Nov 2010****B.Sc. - Bachelor Degree in Environmental Sciences - Padua University, Padua (Italy)****Sep 2005 – Jul 2008**

- *Dissertation*: Fossil fuels and main sources of renewable energy (*110/110 with honors*)

Publications (Journal papers)

Peer-reviewed

1. **Cinelli, M.**, Coles, S. R., Nadagouda, M.N., Błaszczński, J., Słowiński, R., Varma, R.S., Kirwan, K. *Robustness analysis of a classification model for the synthesis of silver nanoparticles*. Journal of Cleaner Production (IF: 4.959, Q1), 2017. (Under review).
2. **Cinelli, M.** *The art of supporting decision-making*. Exchanges: The Warwick Research Journal, 2017. (Under review).
3. Kadziński, M.; **Cinelli, M.**; Ciomek, K; Coles, S. R.; Nadagouda, M. N.; Varma, R. S.; Kirwan, K. *Co-constructive development of a green chemistry-based model for the performance assessment of nanoparticles synthesis*. European Journal of Operational Research (IF: 2.679, Q1), 2016. <http://dx.doi.org/10.1016/j.ejor.2016.10.019>
4. **Cinelli, M.**; Coles, S. R.; Sadik, O.; Karn, B.; Kirwan, K. *A Framework of Criteria for the Sustainability Assessment of Nanoproducts*. Journal of Cleaner Production (IF: 4.959, Q1), 2016. 126: 277-287. (7 citations, Google Scholar).
5. **Cinelli, M.**; Coles, S. R.; Nadagouda, M. N.; Błaszczński, J.; Słowiński, R.; Varma, R.S.; Kirwan, K. *A green chemistry-based classification model for the synthesis of silver nanoparticles*. Green Chemistry (IF: 8.506, Q1), 2015. 17: 2825-2839. (16 citations, Google Scholar; part of top 10% most downloaded articles published in Green Chemistry in 2015).
6. **Cinelli, M.**; Coles, S. R.; Kirwan, K. *Analysis of the Potentials of Multi Criteria Decision Analysis Methods to Conduct Sustainability Assessment*. Ecological Indicators (IF: 3.190, Q1), 2014. 46: 138-148. (81 citations, Google Scholar; part of the most downloaded articles published in Ecological Indicators in the last 90 days).
7. Hristozov, D. R.; Gottardo, S.; **Cinelli, M.**; Isigonis, P.; Zabeo, A.; Critto, A.; Van Tongeren, M.; Tran, L.; Marcomini, A. *Application of a quantitative weight of evidence approach for ranking and prioritization of occupational exposure scenarios for titanium dioxide and carbon nanomaterials*. Nanotoxicology (IF: 7.913, Q1), 2014. 8 (2): 117-131. (14 citations, Google Scholar).
8. **Cinelli, M.**; Florencio, P.; Hancox, I.; Reddick, Y.; Uzoечи, K. *Approaches to Sustainability Conference, 28th June 2013*. Exchanges: The Warwick Research Journal, 2013 1(1), 86-90.

Non peer-reviewed

1. **Cinelli, M.**; Coles, S. R.; Jørgensen, A.; Zamagni, A.; Fernando, F.; Kirwan, K. *Workshop on life cycle sustainability assessment: the state of the art and research needs—November 26, 2012, Copenhagen, Denmark*. The International Journal of Life Cycle Assessment (IF: 3.324, Q1), 2013. 18(7): 1421-1424. (6 citations, Google Scholar).
2. **Cinelli, M.**; Coles, S. R.; Kirwan, K. *Use of Multi Criteria Decision Analysis to Support Life Cycle Sustainability Assessment: An Analysis of the Appropriateness of the Available Methods*. in Proceedings of the 6th International Conference on Life Cycle Management, 677-680, 25-28 August, 2013. Gothenburg, Sweden. (3 citations, Google Scholar).
3. **Cinelli, M.** *Analysis of Feed-in and Tradable Green Certificates (TGC) support mechanisms for renewable energy in Europe*. Journal of International Development and Cooperation, 2011. 17(3): 45-60.

Publications (Conference/Seminar oral presentations)

Invited

1. *Co-constructive development of a green chemistry-based model for the performance assessment of nanoparticles synthesis* (co-authors Milosz Kadziński, Krisztof Ciomek, Stuart R. Coles, Mallikarjuna N. Nadagouda, Rajender S. Varma, Kerry Kirwan), 28th European Conference on Operational Research, 3-6 July, 2016, Poznan, Poland

2. *Co-Constructing Sustainable Nanotechnology with Multiple Criteria Decision Aiding*, (invited by Dr. Serenella Sala) Bio-Economy Unit – Directorate D - Sustainable Resources, Joint Research Centre (JRC), European Commission, 2 May, 2016, Ispra (VA), Italy
3. *Multi-Criteria Decision Aiding: A Decision Support Approach for Green Chemistry-Oriented Synthesis of Nanomaterials* (co-authors Stuart R. Coles, Mallikarjuna N. Nadagouda, Jerzy Błaszczyński, Roman Słowiński, Rajender S. Varma, Kerry Kirwan), 23rd International Conference on Multiple Criteria Decision Making, 2-7 August, 2015, Hamburg, Germany

Self-proposed

1. *A weighting scheme for life cycle impact assessment categories of the Environmental Product Footprint methodology* (co-authors Serenella Sala, Kerry Kirwan, Rana Pant), Research workshop at Joint Research Centre of the European Commission, 13-14 December, 2016, Ispra, Italy
2. *Multiple Criteria Decision Aiding Moves Sustainable Nanotechnology Forward* (co-authors Stuart R. Coles, Mallikarjuna N. Nadagouda, Jerzy Błaszczyński, Roman Słowiński, Rajender S. Varma, Kerry Kirwan), 82nd European Working Group on Multiple Criteria Decision Aiding, 24-26 September, 2015, Odense, Denmark
2. *Multi-Criteria Decision Aiding: Supporting Decisions for Green Chemistry-Oriented Synthesis of Nanomaterials* (co-authors Stuart R. Coles, Mallikarjuna N. Nadagouda, Jerzy Błaszczyński, Roman Słowiński, Rajender S. Varma, Kerry Kirwan), 2nd WMG Doctoral Research and Innovation Conference, 30 June - 1 July, 2015, WMG, University of Warwick, Coventry, UK
3. *Moving Sustainable Nanotechnology Forward* (co-authors Stuart R. Coles, Omowunmi Sadik, Barbara Karn, Kerry Kirwan), "Seminars on Nanotechnology", 09-10 June 2015, WMG, University of Warwick, Coventry, UK
4. *Supporting Decision-Making for Nanosafety* (co-authors Stuart R. Coles, Jerzy Błaszczyński, Roman Słowiński, Kerry Kirwan), 3rd Sustainable Nanotechnology Organization Conference, 2-4 November, 2014, Boston, MA, USA
5. *Supporting Decision-Making for Green Synthesis of Nanoparticles* (co-authors Stuart R. Coles, Mallikarjuna N. Nadagouda, Jerzy Błaszczyński, Roman Słowiński, Rajender S. Varma, Kerry Kirwan), 22nd Bio-Environmental Polymer Society Conference, 14-17 October, 2014, Kansas City, USA
6. *Sustainability of Nanocellulose: Proposal for an Integrated Assessment* (co-authors Stuart R. Coles, Kerry Kirwan), 21st Bio-Environmental Polymer Society Conference, 18-20 September, 2013, Warwick, UK
7. *Multi Criteria Decision Analysis: supporting Life Cycle Sustainability Assessment* (co-authors Stuart R. Coles, Kerry Kirwan), 6th International Conference on Life Cycle Management, 25-28 August 2013, Gothenburg, Sweden
8. *Sustainability assessment of nanocellulose and its applications: a critical review and a proposal of an integrated methodology* (co-authors Stuart R. Coles, Kerry Kirwan), TAPPI International Conference on Nanotechnology for Renewable Materials, 24-27 June 2013, Stockholm, Sweden

Publications (Conference poster presentations)

1. *Improving the Sustainability of Nanomaterials Synthesis with Multi Criteria Decision Analysis* (co-authors Stuart R. Coles, Kerry Kirwan), 1st WMG Doctoral Research and Innovation Conference, 10-11 July, 2014, WMG, University of Warwick, Coventry, UK
2. *Development of an Approach for the Sustainability Assessment of Nanomaterials and Nanoproducts* (co-authors Stuart R. Coles, Kerry Kirwan), 2nd Sustainable Nanotechnology Organization Conference, 3-5 November, 2013, Santa Barbara, USA
3. *Development of an Approach for the Sustainability Assessment of Nanomaterials* (co-authors Stuart R. Coles, Kerry Kirwan), 11th MCDA/M Summer School 2013 Helmut-Schmidt-Universität, July 22– August 2, 2013, Hamburg, Germany

Awards and prizes

Poster prize**May 2016***Institute of Advanced Study - University of Warwick, Coventry (UK)*

- Annual Symposium Flash talk Competition, 19-20 May, 2016, Institute of Advanced Study, University of Warwick, Coventry, UK

Poster prize**Nov 2013***Sustainable Nanotechnology Organization (USA)*

- Poster competition at the 2nd Sustainable Nanotechnology Conference, 2-5 November, 2013, Santa Barbara, CA, USA

Fellowships and grants

Early Career Fellowship & Research Assistantship (11,370 £ - 13,100 Euro)**Apr 2016 – Feb 2017***Institute of Advanced Study (IAS) and WMG Department, University of Warwick, Coventry (UK)*

- University-wide post-doctoral 10-month fellowship competition, focused on enhancement of academic career employability

Doctoral scholarship (65,519 £ - 78,000 Euro)**Oct 2012 – Mar 2016***UK Engineering and Physical Sciences Research Council (EPSRC) and WMG Department, University of Warwick, Coventry (UK)*

- Competitively awarded doctoral funding as part of international interdisciplinary competition of the EPSRC research awards scheme

Conference attendance (200 £ - 240 Euro)**Aug 2015***International Multiple Criteria Decision Making Society*

- Fee waiver: 23rd International Conference on Multiple Criteria Decision Making, Hamburg (Germany), 2-7 August, 2015

Conference attendance (200 £ - 240 Euro)**Nov 2013***Sustainable Nanotechnology Organization (USA)*

- Travel grant for the 2nd Sustainable Nanotechnology Conference, 2-5 November, 2013, Santa Barbara, CA, USA

Selected events' organization

- Invited session (Co-Chair): "LCA for policy making support", SETAC Europe 27th Annual Meeting, Brussels (Belgium), 7-11 May, 2017
- Research workshop (Co-Organizer): "LCA for impact assessment of EU policies", Joint Research Centre, European Commission, Ispra (Italy), 13-14 December, 2016
- Invited session (Chair): "Preference Learning Stream", 28th European Conference on Operational research, Poznan (Poland), 3-6 July, 2016
- Conference (Co-Chair): "Third WMG Doctoral Research and Innovation Conference", WMG, University of Warwick, Coventry (UK), 21 June, 2016
- Invited session (Organizer and Chair): "Use of MCDM/A to support sustainability evaluations", 23rd International Conference on Multiple Criteria Decision Making, Hamburg (Germany), 2-7 August, 2015
- Seminar (Organizer): "Seminars on Nanotechnology", WMG, University of Warwick, Coventry (UK), 09-10 June, 2015
- Conference (Committee member): "First WMG Doctoral Research and Innovation Conference", WMG, University of Warwick, Coventry (UK), 10-11 July, 2014
- Research workshop (Co-Organizer): "How do we reduce our chemical dependence on fossil fuels?", Wolfson Research Exchange, University of Warwick, Coventry (UK), 29 November, 2013
- Research workshop (Co-Organizer): "What is Sustainability?", Wolfson Research Exchange, University of Warwick, Coventry (UK), 25 March, 2013

Teaching

Product Sustainability Assessment**Set 2014 – Present**

WMG, University of Warwick, Coventry (UK)

- Lecture as part of WMG's Full-Time MSc course "Lightweight Materials for Automotive Applications", Professional and Executive Programme and the Technical Accreditation Scheme for Jaguar Land Rover and Tata Motors (in UK and India)

Design for Sustainability**Set 2014 – Present**

WMG, University of Warwick, Coventry (UK)

- Organize and run workshops as part of the MEng module on "Design for Sustainability" (Engineering); Marking essays

Students' Supervision

Stochastic environmental impact assessment of silver nanoparticles synthesis processes**Oct 2015 – June 2016**

WMG, University of Warwick, Coventry (UK)

- Master project on environmental impact assessment of silver nanoparticles synthesis and comprehensive evaluation based on stochastic multiple criteria decision analysis (*successful*)

Stochastic environmental impact assessment of corn stover pre-treatments**Apr 2015 – Sep 2015**

WMG, University of Warwick, Coventry (UK)

- Undergraduate project on use of Stochastic Multi-criteria Acceptability Analysis (SMAA) to support environmental evaluation of four pre-treatment methods of corn stover for bioethanol production (*successful*)

Professional Activities

- *Reviewer for these scientific journals:* **2014 – Present**
Environmental Science & Technology; Journal of Cleaner Production; European Journal of Operational Research; Sustainability; Green Chemistry; Environment Systems and Decisions; Journal of Environmental Informatics; Journal of Polymers and the Environment; International Journal of Environmental Analytical Chemistry; Nanoscale; Environment and Planning B: Planning and Design; Land Use Policy
- *Member, International Multiple Criteria Decision Making Society* **Sep 2013 – Present**
- *Member, EURO Working Group on Multi-Criteria Decision Aiding* **Feb 2015 – Present**
- *Member, Society of Environmental Toxicology and Chemistry Europe* **Jun 2016 – Present**
- *Member, Sustainable Nanotechnology Organization* **Sep 2013 – Present**
- *President, Student-Staff Liaison Committee, Warwick Manufacturing Group - University of Warwick, Coventry (UK)* **Sep 2013 – Oct 2015**

Skills and Interests

- *Languages:* Italian (native), English (C2), German (A1)
- *Software packages:* Office, SPSS (software for statistical data analysis), Gabi (software to perform life cycle (sustainability) assessments), JSMAA & SMAA-LCA (software for Stochastic Multicriteria Acceptability Analysis), *diviz* (platform to support complex decision-making problems), JMAF & jRank (software for Dominance-based Rough Set Approach), ELECTRE & PROMETHEE (software for outranking MCDA methods)
- *Interests:* triathlon (member of the professional team of Warwick University); festivals organization (logistics & equipment for camps planning); society and ethics books; independent traveling (road trips in USA, Japan, India, Europe)
- *Leisure achievements:* Charity swim for UK British Heart Foundation, Bournemouth Pier to Pier (UK), 14 July, 2013; Bike day "Stelvio Pass" (Italy), 29 August, 2015.