École Nationale Supérieure de
Mécanique et des Microtechniques

EXTRAIT DE DELIBERATION N° 9

CR
DU 07 OCTOBRE 2021

- *Nombre de membres en exercice :* *20*
- *Nombre de membres présents :* *13*
- *Nombre de membres représentés :* *2*
- *Quorum :* *10*

Demande Chercheur invité

Les membres de la Commission Recherche approuvent, à l'unanimité des votants, la demande concernant Monsieur Javier HIDALGO GARCIA, qui va se voir proposer le financement de son séjour pour une durée de deux mois. (*cf. annexe n°2*).

VOTE :

- **Votants :** **15**
- **Non-participation au vote :** **0**
- **Abstentions :** **0**
- **Suffrages exprimés :** **15**
- **Pour :** **15**
- **Contre :** **0**

Fait à Besançon, le 07 octobre 2021

Professeur Pascal VAIRAC
Directeur de l'ENSMM

ENSMM BESANÇON
Membre de U.B.F.C.

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École Nationale Supérieure de Mécanique et des Microtechniques

Annexe n°2

APPEL A PROJETS

CHERCHEURS INVITES 2022

Fiche de renseignements

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1. **Identité du porteur (personnel ENSMM ou hébergé à l'ENSMM)**

   Nom du porteur présentant la demande : Nathalie BOUDEAU

   Unité de Recherche : Institut FEMTO-ST, Département de Mécanique Appliquée

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2. **Identité de la personne invitée**

   Nom & prénom : Hidalgo Garcia, Javier

   Date et lieu de naissance : 03-12-1982

   Nationalité : Espagnole

   Établissement de rattachement (pays – ville - établissement) : Espagne, Ciudad Real, Castilla la Mancha University,

   Fonctions et grade actuelles : Senior research associate

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3. **Calendrier et budget**

   Nombre de mensualités demandées : 1 mois

   Dates approximatives du séjour : Janvier ou Avril 2022

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4. **Avis et signature du Directeur d'Unité**

Très favorable

Laurent LARGER
Directeur de FEMTO-ST

femto-st
SCIENCES & TECHNOLOGIES
Direction Administrative
15B avenue des Montboucons
25030 BESANÇON Cedex France
Tél.(0)3 63 08 24 00 - Fax (0)3 81 66 60 07
www.femto-st.fr

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École Nationale Supérieure de Mécanique et des Microtechniques

CV of Dr. Javier Hidalgo García

Researcher Identification

Surname, Name	Hidalgo Garcia, Javier
ORCID ID	0000-0003-4983-1043
Scopus Author ID:	55638327500

Education

01/2014 - *PhD Materials Science and Engineering (Cum Laude)*, Carlos III de Madrid University, Spain.

01/2014 - *PhD Science for the Engineer (Trés-Honorable)*, Franche-Comte University, France.

09/2010 - *MSc Materials Science and Engineering*, Carlos III de Madrid University, Spain.

08/2009 – *BSc+MSc Industrial Engineering*, Carlos III de Madrid University, Spain.

Current Positions

14/04/2021 - Present - *Senior research associate* supervising several industry funded projects at DYPAM group, Castilla la Mancha University, Spain.

Previous Positions

01/11/2017 - 29/02/2021 – *Senior research associate and project coordinator* of VMAP (ITEA3) project at the Materials Science and Engineering Department, Delft Technical University, The Netherlands.

01/11/2014 - 31/10/2017 – *Research associate* (funded by ERC Grant Dr. Santofimia) at Materials Science and Engineering Department, Delft Technical University, The Netherlands.

01/02/2014 - 30/09/2014 – *Postdoctoral researcher.* Materials Science and Engineering Department, Carlos III de Madrid University, Spain.

01/04/2008 - 31/01/2014 – *Research assistant / PhD researcher.* Materials Science and Engineering Department, Carlos III de Madrid University, Spain.

Research Grants, Fellowships, Prizes and Awards

04/2016 Awarded with five days of beam time in the ID11 beam line of the European Synchrotron Radiation Facility (ESRF), France.

01/10/2010 - 30/09/2014 PIF Scholarship, Carlos III de Madrid University, Spain.

01/09/2009 - 30/09/2010 MSc Scholarship, Carlos III de Madrid University, Spain.

Teaching Activities

2014 – 2019 Training/Teaching 'Project Materiaalkunde' Materials Eng. and Application track, Mechanical Engineering, Delft Technical University, The Netherlands.

2016 – 2019 Co-teaching: 'High Entropy Alloys' in the course 'Metal Science II' MSc Materials Science and Engineering, Delft Technical University, The Netherlands.

2016 – 2019 Co-teaching 'Steel Science' MSc Materials Science and Engineering, Delft Technical University, The Netherlands.

2010 – 2014 Training 'Materials Science and Engineering' and 'Materials Technology' in the Bachelors of Biomedical Engineering, Mechanical Engineering and Electronics and Automation Engineering, Carlos III de Madrid University, Spain.

Supervision and Mentoring Activities

01/11/2014 - Present Delft Technical University, The Netherlands

- Co-promotor of PhD Thesis of A. Navarro-López (June, 2020)
- Supervisor of the Master Thesis of V. Atreya (2017), H. Breukelman (2019), Mark van Seumeren (2021), co-supervision of C.C. Akbar Fitriani (2019)

01/09/2009 - 30/09/2014 Carlos III de Madrid University, Spain

- Supervision of Master/Diploma Thesis of D. Berzal (2009), E. Santos (2011), A. Relaño (2013) and C. Achucarro (2014).

Institutional Responsibilities

2016 - 2017 Member of the Research Committee of the Material Science and Engineering (MSE) Department of the Technical University of Delft, The Netherlands.

2015 - 2017 Board Member/Treasurer of the Materials Science and Engineering department student Association (Tubalkain), Technical University of Delft, The Netherlands.

Technology transfer such us patents or Commercialisation activities or/and participation in partnerships projects with companies

Patents:

02/01/2012 J. M. Contreras; J. Hidalgo; A. Jiménez-Morales; J. Manuel Torralba. ES 2 356 952 B1. Procedimiento para la Fabricación de Piezas Cerámicas y/o Metálicas utilizando un Sistema Ligante Basado en Polisacáridos. Spain.

Participation in partnerships projects:

01/11/2017 - 30/09/2020 *A new Interface Standard for Integrated Virtual Material Modelling in Manufacturing Industry (VMAP).* Funder: ITEA3/EUREKA Cluster programme. Institution: Delft University of Technology. Contribution: Project Coordinator at TU Delft.

02/09/2011 - 30/04/2015 *Desarrollo de procesos ecológicos y competitivos de moldeo por inyección de polvos para su utilización en la implementación de nuevas aplicaciones comerciales de silicato de circonio.* Funder Ministry of Science and Innovation (Spain). Institution: Carlos III de Madrid University. Contribution: Assistant researcher.

01/12/2012 - 30/11/2014 *Magnetide: Improved magnets for energy generation through advanced tidal technology.* Funder European Commission. Institution: Carlos III de Madrid University. Contribution: Assistant researcher.

01/07/2013-30/09/2014 *Viabilidad del proceso de atomización de Fe-xMn-yC en gas. Estudio de variables físicas y químicas y parámetros para su industrialización.* Funder Aleaciones de Metales Sinterizados, S.A.. Institution: Carlos III de Madrid University. Contribution: Assistant researcher.

01/01/2010-30/08/2010 *Development of MIM process for a nickel base alloy.* Funder SNECMA. Institution: Carlos III de Madrid University. Contribution: Assistant researcher.

01/04/2008-01/04/2009 *Piezas de Gran Tamaño y Complejidad Geométrica mediante Moldeo por Inyección Metálica (MIM): Aplicación al caso de una Prótesis de Rodilla.* Funder MIM TECH ALFA SL.. Institution: Carlos III de Madrid University. Contribution: Assistant researcher.

Other projects:

1/11/2014 – 31/10/2017 *Controlling Non-Equilibrium in Steels*. European Research Council. Institution: Delft University of Technology. Contribution: Associate researcher.

Other relevant academic or scientific merits

Scientific Collaborations: I collaborate with numerous colleagues within TU Delft (The Netherlands), and my PhD supervisors in Carlos III de Madrid University (Spain). Additionally my main external collaborators are below:

- Prof. K.O. Findley, Colorado School of Mines, U.S.A. Topic: Effect of martensite strength on mechanical stability of austenite.
- Prof. R. Petrov, University of Ghent, Belgium. Topic: EBSD analysis of local strain development in ferrite around large carbides during deformation of annealed steel.
- Dr. J. Post and Dr. A. Vakis, University of Groningen, The Netherlands. Topic: Application of micromechanical models for the simulation of steel sheet forming.
- Dr. S. Karewar, Eindhoven University of Technology, The Netherlands. Topic: Molecular dynamic simulations of austenite to martensite transformation in nanocrystalline systems with planar defects.
- Dr. C. Garcia-Mateo, National Centre for Metallurgical Research, CENIM-CSIC, Madrid, Spain. Topic: Factors influencing reduction of bainite lath during ausforming processes.
- In Industry: Dr. C. Celada-Casero (TATA Steel, The Netherlands), Dr. H. Farahani (TATA Steel, The Netherlands), Dr. H. Kooiker (Philips, Drachten, The Netherlands.)

Referee Activities: I am referee for the following journals: Acta Materalia, Metallurgical and Materials Transactions A, Materials, Metals, Materials Science and Engineering A, Advances in Materials Science and Engineering, Steel Research International.

La liste exhaustive des publications du candidat

Publications

Total No. Publication: **36**	H-Index: **12**	N°Articles in Q1 Journals: **18**	Total no. of citations: **480**	**SCOPUS**
N°Journal Articles: **24**		N°Book Chapters: **1**	Associated publications to conference: **11**	

Scientific papers (JCR): IF: Impact Factor, NC: Number of citations (SCOPUS)

1. C. Berges; J. Hidalgo; et al. 2021. Prospects of producing solid oxide fuels interconnectors processed by metal injection moulding. Results in Engineering, 11, 100268. CS: 1.8 NC: 0

2. A. Eres-Castellanos; J. Hidalgo; et a. 2021. The role of plastic strains on variant selection in ausformed bainitic microstructures studied by finite elements and crystal plasticity simulations. Journal of Materials Research and Technology, 13, pp. 1416-1430. IF: 5.039 NC: 0

3. M. Vittorietti; J. Hidalgo; et al. 2021. Isotonic regression for metallic microstructure data: estimation and testing under order restrictions, Journal of Applied Statistics. IF: 1.404 NC: 0

4. A. Eres-Castellanos; J. Hidalgo; et al. 2021. Assessing the scale contributing factors of three carbide-free bainitic steels: A complementary theoretical and experimental approach. Materials and Design, 197, 109217. IF: 6.29 NC: 4

5. J. Galán-López; J. Hidalgo. 2020. Use of the Correlation between Grain Size and Crystallographic Orientation in Crystal Plasticity Simulations: Application to AISI 420 Stainless Steel. Crystals. 10 (9) IF: 2.14 NC: 1

6. J. Hidalgo; et al. 2020, Influence of $M_{23}C_6$ Carbides on the Heterogeneous Strain Development in Annealed 420 Stainless Steel. Acta Materialia, 200, pp.74-90. IF: 7.66 NC: 1

7. A. Navarro-López; J. Hidalgo; et al. 2020. Unravelling the Mechanical Behaviour of Advanced Multiphase Steels Isothermally Obtained Below Ms Materials and Design. IF: 6.25 NC: 6

8. J. Hidalgo; C. Celada-Casero; M.J. Santofimia. 2019. Fracture mechanisms and microstructure in a medium Mn quenching and partitioning steel exhibiting macrosegregation Materials Science & Engineering: A. 754, pp.766-777. IF: 4.62 NC: 17

9. J. Hidalgo; et al. 2019. Interplay between metastable phases controls strength and ductility in steels Materials Science and Engineering: A. 745, pp.185-194. IF: 4.62 NC: 6

10. A. Navarro-López; J. Hidalgo; et al. 2018. Influence of the Prior Athermal Martensite on the Mechanical Response of Advanced Bainitic Steel Materials Science & Engineering: A. 735, pp.343-353. IF: 4.62 NC: 12

11. A. Navarro-López; J. Hidalgo; et al. 2017. Characterization of the Bainitic/Martensitic Nature of Product Phases in steel, formed in Isothermal Treatments Below the Ms Temperature Materials Characterization. 128, pp.248-256. IF: 3.09 NC: 65

12. K.O. Findley; J. Hidalgo; et al. 2017. Controlling the work hardening of martensite to increase the strength/ductility balance in quenched and partitioned steels Materials and Design. 117, pp.248-256. IF: 5.16 NC: 42

13. J. Hidalgo; K.O. Findley; M.J. Santofimia. 2017. Thermal and mechanical stability of retained austenite surrounded by martensite with different degrees of tempering Materials Science & Engineering: A. 690, pp.337-347. IF: 3.76 NC: 84

14. J. Hidalgo; M.J. Santofimia. 2016. Effect of Prior Austenite Grain Size Refinement by Thermal Cycling on the Microstructural Features of As-Quenched Lath Martensite Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science. 47- 11, pp.5288-5301. IF: 2.08 NC: 76

15. J. Hidalgo; et al. 2015. Capillary rheology studies of INVAR 36 feedstocks for powder injection moulding Powder Technology. 273, pp.1-7. IF: 2.99 NC: 21

16. J. Hidalgo; et al. 2014. Mechanical and functional properties of Invar alloy for μ-MIM Powder Metallurgy. 57-2, pp.127-136. IF: 0.66 NC: 7

17. C. Abajo; J. Hidalgo; et al. 2014. Optimisation of eco-friendly binary binder system for powder injection moulding Powder Metallurgy. 57-3, pp.196-203. IF: 0.66 NC: 5

18. J. Hidalgo; et al. 2014. Water soluble Invar 36 feedstock development for μPIM Journal of Materials Processing Technology. 214-2, pp.436-444. IF: 3.43 NC: 13

19. J. Hidalgo; et al. 2013. Effect of a binder system on the low-pressure powder injection moulding of water-soluble zircon feedstocks Journal of the European Ceramic Society. 33- 15-16, pp.3185-3194. IF: 2.57 NC: 26

20. J. Hidalgo; et al. 2013. Effect of the particle size and solids volume fraction on the thermal degradation behaviour of Invar 36 feedstocks Polymer Degradation and Stability. 98-12, pp.2546-2555. IF: 3.35 NC: 15

21. J.M. Torralba; J. Hidalgo; A. Jiménez-Morales. 2013. Powder injection moulding: Processing of small parts of complex shape International Journal of Microstructure and Materials Properties. 8-1-2, pp.87-96. IF: 0.15 NC: 6

22. J. Hidalgo; A. Jiménez-Morales; J.M. Torralba. 2013. Thermal stability and degradation kinetics of feedstocks for powder injection moulding - A new way to determine optimal solid loading? Polymer Degradation and Stability. 98-6, pp.1188-1195. IF: 3.35 NC: 15

23. J. Hidalgo; A. Jiménez-Morales; J.M. Torralba. 2012. Torque rheology of zircon feedstocks for powder injection moulding Journal of the European Ceramic Society. 32-16, pp.4063-4072. IF: 2.81 NC: 55

Scientific Papers (no JCR):

1 E. Bernardo; J. Hidalgo; et al. 2012. Feedstock development for Powder Injection Moulding of Zirconium Silicate Powder Injection Moulding International. 6-1, pp.64-67.

Book Chapters:

1 J.M. Torralba; J. Hidalgo. 2019. Metal injection molding (MIM) of stainless steels Handbook of Metal Injection Molding, 2nd edition. Woodhead Publishing. pp.409-427.

Contribution to Conferences:

My research activity has resulted in 30 works presented in national and international conferences, mainly oral presentations. I was invited speaker at THERMEC 2016 and 2018. I also have given talks in EUROMAT 2019, 2017, 2013, Euro PM 2011,2012, 2013 and AMPT 2015. 11 of the former works has been published in corresponding conference proceeding books with ISBN and were peer-reviewed (Presenter is underlined):

1. A.Gallego, C. Berges, J. Hidalgo, J.A. Naranjo, G. Antón, R. Andújar, R. Campana, G. Herranz, Exploring custom designs of MIM components to optimise large scale production of SOFC interconnectors. EURO PM 2021, Online. **To be published in Proceedings Book** (Oral Presentation).

2. A. Eres-Castellanos, J. Hidalgo, L. Morales-Rivas, F. G. Caballero, C. Garcia-Mateo, Unraveling the mechanisms governing variant selection during ausforming treatments by Finite Elements and Crystal Plasticity. EUROMAT 2021, Online. (Oral Presentation)

3. J. Hidalgo, H. Farahani, F. Vercruysse, R. Petrov, J. Sietsma, Modeling of Deformation Behavior of an Annealed 420 Stainless Steel Based on a Sophisticated Simulated 3D Microstructure. EUROMAT 2019, Stockholm, Sweden. (Oral Presentation)

4. A. Navarro-López, J. Hidalgo, C. A. Fitriani, R. Huizenga, J. Sietsma, M. J. Santofimia, In-situ evolution of carbon partitioning during phase transformations below Ms in advanced multiphase steels. EUROMAT 2019, Stockholm, Sweden. (Oral Presentation)

5. H. Farahani, J. Hidalgo, J. Sietsma, A Multi-Step Analysis of Evolution of Dislocation Structure during Deformation and Recovery of a Single-Phase Stainless Steel. EUROMAT 2019, Stockholm, Sweden. (Oral Presentation)

6. A. Eres-Castellanos, J. Hidalgo, M. Zorgani, M. Jahazi, I. Toda-Caraballo, F. G. Caballero, C. Garcia-Mateo, On the control of the scale of nanobainitic microstructures by prior austenite strengthening. EUROMAT 2019, Stockholm, Sweden. (Oral Presentation)

7. H.J. Breukelman, M.J. Santofimia, J. Hidalgo, Effect of localized laser heat treatments on the microstructure of a FeCNi Steel. 7th International Conference on Recrystallization and Grain Growth (2019), Ghent, Belgium. (Oral Presentation)

8. J.Hidalgo, Progress in advanced structural steels and their industrial applications. II Symposium on Materials: Advanced Materials in Industry and their Applications (2018). Panama City, Panama. (Keynote Speaker)

9. J. Hidalgo, C. Celada-Casero, M.J. Santofimia, Microstructural features controlling toughness in medium manganese steels subjected to quenching and partitioning processes. THERMEC 2018, Paris, France. (Oral Presentation/Invited Speaker)

10. J. Hidalgo, C. Celada-Casero, M.J. Santofimia, Microstructure and fracture mechanisms in quenching and partitioning steels, book of abstracts of International Symposium on Nano and Micro Scale Damage in Metals 2018 at Utrech. (Oral Presentation)

11. J. Hidalgo, M.J. Santofimia, Effect of stress on quenched and partitioning process evaluated by deformation dilatometer. EUROMAT 2017, Thessaloniki, Greece (Oral Presentation)

12. A. Navarro-López; J. Hidalgo; J. Sietsma; M. J. Santofimia. Towards a More Sustainable Manufacturing of Advanced Multiphase Steels Through the Acceleration of Bainite Formation. EUROMAT 2017, Thessaloniki, Greece (Oral Presentation)

13. J. Hidalgo, C. Celada-Casero, M.J. Santofimia, Investigation of in-use properties of quenching and partitioning steels by small punch test analysis, proceedings of SCT 2017 at Amsterdam, # 135 Düsseldorf: Verlag Stahleisen, 2017 **ISBN: 978-3-514-00906-6** (Oral Presentation)

14. A. Navarro-López; J. Hidalgo; J. Sietsma; M.J. Santofimia, The Effect of Martensite/Bainite Microstructures obtained Above and Below Ms on the Mechanical Properties in a low-C Steel. Materials Science and Engineering (2016), Darmstadt, Germany. (Oral Presentation)

15. A. Navarro-López, J. Hidalgo, J. Sietsma, M.J. Santofimia, Characterization of Product Phases formed from Austenite during Isothermal Treatments around the Ms Temperature in a Low-C High-Si Steel, book of abstracts of THERMEC 2016 at Graz. (Poster Session)

16. J. Hidalgo, J. Sietsma, M.J. Santofimia, Deformation dilatometry to study the mechanical stability of austenite at different temperatures, book of abstracts of THERMEC 2016 at Graz. (Oral Presentation/Invited Speaker)

17. J. Hidalgo, J. Sietsma, M.J. Santofimia, Effect of Prior Austenite Grain Size Refinement by Thermal Cycling on the Microstructural Features of As-Quenched Lath Martensite, AMPT 2015 at Madrid. (Oral Presentation)

18. J. Hidalgo, A. Jiménez-Morales, T. Barriere, J.C. Gelin, J.M. Torralba, Effect of Debinding and sintering Atmospheres of Low expansion Invar alloy for μMIM, proceedings Euro PM2013 Symposium, Göteborg, Sweden. **ISBN: 978-1-1899072-31-1**. (Oral Presentation)

19. C. Abajo, J. Hidalgo, A. Jiménez-Morales, J.M. Torralba, Feedstock development based on eco-friendly binder system for powder injection molding, proceedings Euro PM2013 Symposium, Göteborg, Sweden. **ISBN: 978-1-1899072-31-1**. (Oral Presentation)

20. D. Carbonell, J. Hidalgo, A. Jiménez-Morales, Corrosion protection of powder metallurgy Al alloys by sol-gel based coatings systems. EuroPM2012 Congress, Basel (Swiss)(2012), **ISBN: 978-1-899072-36-1**. (Oral Presentation)

21. J. Hidalgo, A. Jiménez-Morales and J.M. Torralba, Rheological Characterization of Zirconium Silicate Feedstocks Based on Water Soluble Binder, EuroPM2012 congress, Basel (Swiss)(2012), **ISBN: 978-1-899072-36-1**. (Oral Presentation)

22. D. Carbonell, J. Hidalgo. A. Jiménez-Morales, Design of New Sol-Gel Coatings for the Protection of Powder Metallurgy Aluminium Based Alloys Against the Electrochemical Corrosion, IVCNP (Congreso Nacional de Pulvimetalurgia) Sevilla (Spain)(2012), **ISBN 13-978-84-695-3723-7**.(Oral Presentation)

23. J. Hidalgo, A. Jiménez-Morales and J.M. Torralba, Rheological Characterization of Zircon Powders and Water Soluble Binder Mixtures, IVCNP (Congreso Nacional de Pulvimetalurgia) Sevilla, Spain (2012), **ISBN 13-978-84-695-3723-7**.(Oral Presentation)

24. J.M. Torralba, J. Hidalgo, A. Jiménez-Morales, Processing of Small Parts of Complex Shape, ICIT&MPT 2011 (8th International Conference of Industrial Tool and Materials Processing Technologies), Ljubljina, Eslovenia (2011), **ISBN: 978-961-6692-02-1**.(Oral Presentation)

25. E. Bernardo, J. Hidalgo, A. Jiménez-Morales and J.M. Torralba, Feedstock Development for Powder Injection Moulding of Zirconium Silicate, PM2011 Euro Congress, Barcelona, Spain (2011) **ISBN 978-1-899072-23-1**.(Oral Presentation)

26. J. Hidalgo, J.M. Contreras, S. González, A. Jiménez-Morales and J.M. Torralba, Novel process for the fabrication of metallic and ceramic components by powder injection moulding (PIM) using a thermoplastic binder system based on polysaccharides. 3rd National Congress of Powder Metallurgy, Valencia (Spain) (2010) **ISBN: 978-84-8363-564-3**.(Oral Presentation)

27. J. Hidalgo, J.M. Contreras, B. Baile, A. Jiménez-Morales and J.M. Torralba, Estudio del comportamiento reológico y térmico de mezclas polvo-ligante para la tecnología de moldeo por inyección de polvos (PIM) fabricadas con sistemas ligantes basados en ceras. IX National Congress of Materials, Zaragoza (Spain) (2010) **ISBN: 978-84-92522-24-8**.(Poster Session)

28. J. Hidalgo, J.M. Contreras, B. Baile, A. Jiménez-Morales and J.M. Torralba, Rheological and Thermal Behaviour of Powder Injection Moulding (PIM) Fedstocks Fabricated with Binder Systems Based on Waxes, PM2010 World Congress, Florence (Italy) (2010), **ISBN 978-1-899072-19-4**.(Oral Presentation)

29. J. Hidalgo, J.M. Contreras, D. Berzal, A. Jiménez-Morales and J.M. Torralba, Fabrication of Glass Components by Powder Injection Moulding (PIM) Recycling Glass Waste , PM2010 World Congress, Florence (Italy) (2010), **ISBN 978-1-899072-19-4**.(Poster Session)

30. J. Hidalgo, J.M. Contreras, S. González, A. Jiménez-Morales and J.M. Torralba, Rheological Behaviour of Powder Injection Moulding (PIM) Feedstocks Fabricated with a Thermoplastic Binder System Based on Polysaccharides, PM2010 World Congress, Florence (Italy) (2010), **ISBN 978-1-899072-19-4**. (Oral Presentation)

Le projet de recherche du candidat pendant son séjour à l'ENSMM

Le groupe PRISM du Département de Mécanique Appliquée de l'Institut FEMTO-ST (Besançon) travaille sur la fabrication additive à partir de fil fondu. Sa particularité est de maîtriser l'ensemble de la chaîne de fabrication, de la réalisation du mélange liant-poudres à l'impression de composants fonctionnels. On souhaite avec l'accueil de Dr. J. Hidalgo enrichir nos modèles numériques de simulation de dépôt de fil fondu, basés sur la méthode des éléments finis, avec des aspects physiques indispensables à la

compréhension des phénomènes et à la prédiction de l'histoire en température en grande partie responsable des propriétés finales des composants.

La période visée est de 1 mois en janvier ou avril 2022.

La valorisation de ces travaux de recherche sera réalisée dans des journaux à fort facteurs d'impact de notre spécialité comme Additive Manufacturing, Composite Part B ou Material & Design.

Le projet d'interaction de la personnalité invitée dans la pédagogie de l'établissement **(séminaire, conférence, cours ...)**

Durant son séjour, le professeur invité donnera un cours dans l'option MIND et éventuellement dans l'option MSF sur les nouveaux procédés de mise en forme par les technologies d'impression 4D, couplés à la présentation des nouvelles nuances de matériaux innovants, comme les alliages à haute entropie. En parallèle, il pourra donner un séminaire sur ses activités de recherche actuelle à l'Institut FEMTO-ST.