Chengbo MOU

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Prof. Mou has authored and co-authored more than 100 papers in international recognised journals and conferences in specialty fibers, fiber sensing devices, and fiber lasers. From 2016, he has been appointed as the "Young 1000 Talent Plan Professor" at the Key Laboratory of Specialty Fiber Optics and Optical Access Networks (SFOAN), Shanghai Institute for Advanced Communications and Data Science, Joint International Research Laboratory of Specialty Fiber Optics and Advanced Communication, at Shanghai University, Shanghai, China.

His research interests are advanced fibre devices and their applications in sensors and lasers, ultrafast fibre lasers, nanophotonics, vector soliton dynamics etc. My research group works on the fabrication and characterisation of nanomaterial based nonlinear photonic devices. We then use these devices to achieve ultrashort pulse generation within the fibre laser cavity. Various interesting pulse dynamics would then be found within such lasers by studying light-matter interaction and cavity dynamics. Closely working with colleagues at Aston University in United Kingdom, we are currently working on the polarisation dynamics of ultrashort vector soliton pulses. Other key collaborators are from China, Japan, UK, and Russia etc.

Educational Background

06.2006-09.2012 **PhD on Photonics,** Aston Institute of Photonic Technologies (AIPT), Aston University, UK
Supervisor: Prof. Lin Zhang
Ph.D thesis title: Fabrication, Characterisation and Application of 45°and >45° Tilted Fibre Gratings and their applications in fibre lasers and sensors.

09.2004-11.2005 **M.Sc on Photonics&Optoelectronic Devices** at the University of St-Andrews & Heriot-Watt University
Thesis supervisor: Prof. Kishan Dholakia
M.Sc thesis title: Holographically generation of Bessel Beam

09.2000-07.2004 **B.Eng (with honours) on Electronic Science & Technology** at Tianjin University, P.R.China
Thesis supervisor: Prof. Lu Chai
Final year thesis Title: Study of dispersion compensation in chirped pulse amplification system (in Chinese).

Professional Background

06.2013-present: **Industrial Photonics Research Fellow**, European Regional Development Fund (ERDF), Aston University, UK
Supervisor: Prof. Sergei Turitsyn
Project: Fibre Optic Laser and Sensing Technologies II

09.2012-06.2013 **Industrial Photonics Research Fellow**, European Regional Development Fund(ERDF), Aston University, UK
Supervisor: Prof. Sergei Turitsyn
Project: Fibre Optic Laser and Sensing Technologies I

01.2010-09.2012 **Research Associate**, European Regional Development Fund(ERDF), Aston University, UK
Supervisor: Prof. Sergei Turitsyn
Project: Fibre Optic Laser and Sensing Technologies I

Other Research & Industrial Projects

Whilst working in the AIPT, I worked closely with colleagues who working on many other projects. My contribution to these additional projects are listed below

12.2012-12.2015 EPSRC /Grating and waveguide plasmonic sensors EP/J010413/1; £1.2m
*involving in development, fabrication, characterisation and application advanced waveguide based ultrasensitive plasmonic sensors***.**
My major role in this project is UV patterning of specialty designed fibre grating devices for advanced ultrasensitive plasmonic sensors.

04.2011-03.2015 Marie Curie IRSES: Carbon Nanotubes Technologies in Pulsed Fibre Lasers for Telecom and Sensing Applications Project No.269271. €270k;
Research Supervision for visiting oversea researchers.
In this project, I mentored and support the oversea visiting research students in a weekly basis. My roles include technical support, research plan discussion *etc*. This role leads to successful application of the visiting student as a Marie Curie Fellowship.

10.2010-03.2014 UK EPSRC CASE Project；£85k；
Working in collaboration with *Arden Photonics*
Involving mentoring Ph.D student and commercialising in-fibre polarisation components with local photonic company.
In this project, I assisted CASE student mentoring and provide technical support to ensure the project can carry on effectively.

06.2006-06.2012 US Air Force/EOARD/Boeing: High function in-fibre polarisers and polarisation devices for high power fibre laser and amplifier and coherence combining systems;$0.2m
Leading in fabrication, characterisation and development of high performance all-fibre polarisation components for high power fibre laser systems.
In this project, I solved critical problems in reproducing high performance in-fibre components leading to a number of publications and provided additional day-to-day mentoring support to junior Ph.D students. I also provided technical assistance to ensure equipment was used safely and effectively.

06.2009-05.2012 UK SRIF: Advanced Photonic/Nano Biosensor Laboratory；£362k；
involving developing and designing new labs for bio-photonic and nano sensing activities.

07.2007-06.2011 UK EPSRC Platform Grant: Photonic Device and System Research EP/E026391/1; £0.8m;
involving in developing smart photonic sensor and systems development.

Awards & Grants & Other honours

- **2017** Young Scientist Awards, The 16th International Conference on Optical Communications and Networks, Wuzhen, China, 2017
- **2016** National Young 1000 Plan Award (China)
- **2015** Young Eastern Scholar Fellowship (Shanghai Institutions of Higher Learnings)

- **2015** Valued Reviewer of the Optical Society of America (OSA)
- **2014** Chunhui Academic Exchange Grant (Ministry of Education, China)
- **2014** British Council Individual Travel Grant
- **2010** Institute of Physics (IOP) Student Travel Grant
- **2009** Chinese Government Scholarship for Outstanding Self-Financed Students 2009 (the first award winner at Aston University)
- **2009** Valued Reviewer of Sensors and Actuators A (Elsevier)
- **2006** International Student Scholarship from Aston University.
- **2002** Excellent Student Cadre of Tianjin University.

Appointments & Professional Membership

Senior Associate Member of Royal Society of Medicine, Member of Optical Society of America, Associate Member of Institution of Engineering and Technology. I am regular reviewer of more than 13 international leading journals such as *Scientific Reports, ACS Photonics, Optics Letters, Optics Express, Applied Physics Letters, Applied Optics, Optics Communications*, *etc*. I have been involved in conference organising as session chairs such as PIERS(2016), CLEO PR(OSA 2017,2018) and Optical Sensors(OSA 2016,2017).

Selected Publication

1. **Chengbo Mou**, Pouneh Saffari, Dezhi Li, Kaiming Zhou, Lin Zhang, Rupert Soar and Ian Bennion, "Smart structure sensors based on embedded fibre Bragg grating arrays in aluminium alloy matrix by ultrasonic consolidation", ***Measurement Science and Technology***,Vol.**20**, pp.034013, 2009.
2. **Chengbo Mou**, Pouneh Saffari, Hongyan Fu, Kaiming Zhou, Lin Zhang, and Ian Bennion, "Single- and dual-wavelength switchable erbium-doped fiber ring laser based on intracavity polarization selective tilted fiber gratings ", ***Applied Optics***, Vol.**48**, pp.3455-3459, 2009.
3. **Chengbo Mou**, Kaiming Zhou, Edward Davies, Lin Zhang and Ian Bennion, "Fiber Laser Incorporating an Intracavity Micro-channel for Refractive Index and Temperature Sensing", ***IEEE Photonic Technologies Letters*** Vol.**21**, pp.1559-1561, 2009.
4. **Chengbo Mou,** Kaiming Zhou, Lin Zhang and Ian Bennion, "Characterization of 45-tilted fiber grating and its polarization function in fiber ring laser", ***Journal of the Optical Society of America B*** Vol.**26**, pp.1905-1911, 2009.
5. **Chengbo Mou**, Hua Wang, Brandon Bale, Kaiming Zhou, Lin Zhang and Ian Bennion,"All-fiber passively mode-locked femtosecond laser using a 45º-tilted fiber grating polarization element", ***Optics Express*** Vol.**18**, pp.18906-18911, 2010.
6. **Chengbo Mou**, Sergey Sergeyev, Aleksey Rozhin and Sergei Turitsyn,"All-fiber polarization locked vector soliton laser using carbon nantobues***" Optics Letters*** Vol.**26**, pp.3831-3833, 2011.
7. **Chengbo Mou**, Aleksey Rozhin, Raz Arif, Kaiming Zhou and Sergei Turitsyn, "Polarization insensitive in-fiber mode-locker based on Carbon Nanotube with N-methyl-2-Pryrrolidone solvent filled fiber microchamber " ***Applied Physics Letters***, Vol.**100**,pp.101110,2012.
8. **Chengbo Mou**, Raz, Arif, Aleksey Rozhin, and Sergei Turitsyn, "Passively harmonic mode locked erbium doped fiber soliton laser with carbon nanotubes based saturable absorber", ***Optical Materials Express***, Vol.**2**, pp884-890, 2012.
9. **Chengbo Mou**, Kaiming Zhou, Zhijun Yan, Hongyan Fu and Lin Zhang, "Liquid Level Sensor Based on an Exessively Tilted Fibre Grating" ***Optics Communications***，Vol.305, pp.271-275,2013
10. **Chengbo Mou,** Sergey Sergeyev, Aleksey Rozhin, and Sergei Turitsyn, "Bound state vector solitons with locked and precessing states of polarization" ***Optics Express***, Vol.21,pp26868-26875,2013
11. Zuxing Zhang, **Chengbo Mou**, Zhijun Yan, Kaiming Zhou, Lin Zhang and Sergei Turitsyn,"Sub-100 fs mode-locked erbium-doped fiber laser using a 45°-tilted fiber grating" ***Optics Express,*** Vol.21,pp28297-28303，

2013 ***(corresponding author)***

12. Dengfeng Fan, **Chengbo Mou**, Xuekun Bai, Shaofei Wang, Na Chen and Xianglong Zeng, "Passively Q-switched erbium-doped fiber laser using evanescent field interaction with gold-nanosphere based saturable absorber", ***Optics Express***, **V**.22, pp18537, **2014.(corresponding author)**
13. Sergey Sergeyev, **Chengbo Mou**, Elena Turitsyna, Aleksey Rozhin, Sergei Turitsyn and Keith Blow,"Spiral Attraor Created by Vector Solitons", ***Light: Science & Applications*** , doi:10.1038/lsa.2014.12, 2014
14. **Chengbo Mou**, Raz Arif, Anatoly S Lobach, Dmitry V Khudyakov, Nataliya G Spitsina, Valery A Kazakov, Sergei Turitsyn, Aleksey Rozhin," Poor fluorinated graphene sheets carboxymethylcellulose polymer composite mode locker for erbium doped fiber laser", ***Applied Physics Letters***,106,061106, **2015**
15. Graham Lee, **Chengbo Mou**, Kaiming Zhou and Kate Sugden,"Optimization and Characterization of femtosecond laser inscribed in-fiber microchannels for liquid sensing", ***IEEE Journal of Lightwave Technology***, **V**.33,pp.2561-2565,**2015**
16. Xuekun Bai, **Chengbo Mou**, Luxi Xu, Shaofei Wang, Shengli Pu, and Xianglong Zeng,"Passively Q-switched erbium-doped fiber laser using Fe_3O_4-nanoparticle saturable absorber", ***Appl.Phys.Express***, **V**9,042701,**2016(co-corresponding author)**
17. Maria Chernysheva, **Chengbo Mou**, Raz Arif, Mohammed,Mark Rummeli,Aleksey Rozhin and Sergei Turitsyn, "High Power Q-Switched Thulium Doped Fibre Laser using Carbon Nanotube Polymer Composite Saturable Absorber **",** ***Scientific Report,*** **2016 (corresponding author and first author)**
18. Maria Chernysheva, Aleksey Rozhin, Yuri Fedotov, **Chengbo Mou**, Raz Arif, Sergey M.Kobtsev, Evgeny M.Dianov and Sergei Turitsyn, "Carbon nanotubes for ultrafast fibre lasers", ***Nanophotonics***, 2016 (***invited review***)

Conference Papers

1. **Chengbo Mou**, Kaiming Zhou, Edward Davies, Lin Zhang and Ian Bennion, "Fibre Laser Using a Microchannel Based Loss Tuning Element for Refractive Index Sensing", ***oral presentation***, 20th ***International Conference on Optical Fibre Sensors (OFS-20)***, Oct 5-9 2009, Edinburgh, UK
2. **Chengbo Mou,** Hua Wang, Brandon Bale**,** Kaiming Zhou, Lin Zhang, Sergei Turitsyn and Ian Bennion, "All Fibre Femtosecond Pulse Generation Using an Intracavity 45º-Tilted Fibre Grating", ***oral presentation***, ***Bragg Gratings, Photosensitivity and Poling in Glass Waveguides (BGPP)***, Jun21-24,2010, Karlsruhe, Germany.
3. **Chengbo Mou**, Rui Suo, Kaiming Zhou, Lin Zhang, and Ian Bennion, "2nd Order Bragg Resonance Generated In A 45º Tilted Fiber Grating And Its Application In A Fiber Laser", ***oral presentation***, ***Bragg Gratings, Photosensitivity and Poling in Glass Waveguides (BGPP)***, Jun21-24 2010, Karlsruhe, Germany.
4. **Chengbo Mou**, Aleksey Rozhin, Kaiming Zhou and Sergei Turitsyn, "Fiber Laser Mode Locked by Carbon Nanotubes-N-methyl-2-Pryrrolidone Solution in Fiber Microchannel", ***oral presentation***, ***The Optical Fiber Communication Conference and Exposition and the National Fiber Optic Engineers Conference (OFC/NFOEC)*** , Mar6-10 2011, Los Angeles, US.
5. **Chengbo Mou,** Aleksey Rozhin, Sergey Sergeyev, and Sergei Turitsyn, "Passive Mode locking in Erbium-Doped Fibre Laser by Carbon Nanotubes", ***oral presentation***, 12th ***Conference on Lasers and Electro-Optics /Europe*** (***CLEO/EU)***, May22-26 2011, Munich, Germany.
6. Aleksey Rozhin, **Chengbo Mou**, Raz Arif, Martin Kolar, Kaiming Zhou and Sergei Turitsyn, "Carbon Nanotubes N-methyl-2-Pryrrolidone (NMP) Solution: Optical Properties and Application as Micro-channel Mode-Locker Device in Fibre Laser" ***oral presentation, European Materials Research Society Symposium (EMRS)***,May9-13 2011, Nice, France.
7. **Chengbo Mou**, Sergey Sergeyev, Aleksey Rozhin and Sergei Turitsyn, "Vector solitons with Slowly Precessing States of Polarization" ***oral presentation, Nonlinear Photonics (NP)***, Jun17-21 2012, Colorado Springs, Colorado, US.
8. **Chengbo Mou**, Sergey Sergeyev, Aleksey Rozhin and Sergei Turitsyn, "Polarization Dynamics of Bound State Solitons in a Carbon Nanotubes Mode Locked Erbium Doped Fiber Laser" ***oral presentation***, 13th ***Conference on Lasers and Electro-Optics /Europe*** (***CLEO/EU)***, May12-16 2013, Munich, Germany

9. **Chengbo Mou**, Sergey Sergeyev, Raz Arif, Alexksey Rozhin, Stanislav Kolpakov, Zuxing Zhang and Sergei Turitsyn, "Polarization switching in stretched pulse fiber laser", ***oral presentation***, ***Conference on Lasers and Electro-Optics*** , Jun8-13 2014, San Jose, US
10. **Chengbo Mou**, Sergey Sergeyev, Stanislav Kolpakov, Raz Arif, Alex Rozhin, Maria Chernysheva, Sergei Turitsyn," Polarization dynamics of dissipative solitons in a erbium doped fiber laser passively mode locked by carbon nanotube polymer composite", ***oral presentation***, ***Conference on Lasers and Electro-Optics*** (***CLEO)***, Jun10-15 2015, San Jose, US
11. Maria Chernysheva, **Chengbo Mou**, Alexander Krylov, Raz Arif, Aleksey Rozhin, Mark Rummeli, Evgeny Dianov, and Sergei Turitsyn, "Hybrid Q-switched Thulium-Doped Fiber Laser using Carbon Nanotubes", ***Laser Physics Workshop***, Aug21-25 2015, Shanghai, China
12. **Chengbo Mou**, Raz Arif, Antoly Lobach, Nataliya Spitsina, Valery Kazakov, Aleksey Rozhin and Sergei Turitsyn, "Erbium Doped Fiber Laser Mode Locked by Graphene in Carboxymethylcellulose Polymer Composite", ***poster presentation***, ***The Optical Fiber Communication Conference and Exposition and the National Fiber Optic Engineers Conference (OFC/NFOEC)***, Mar09-13 2014, San Francisco, US.
13. **Chengbo Mou**, Zuxing Zhang, Zhijun Yan, Kaiming Zhou, Lin Zhang and Sergei Turitsyn, "All-Fiber Erbium Doped Fiber Laser Based on an Intracavity Polarizing Fiber Grating", ***poster presentation***, ***The Optical Fiber Communication Conference and Exposition and the National Fiber Optic Engineers Conference (OFC/NFOEC)***, Mar09-13 2014, San Francisco, US.
14. Graham Lee, **Chengbo Mou**, Kaiming Zhou and Kate Sugden, "Optimization and characterization of femtosecond laser inscribed in-fiber microchannels for liquid sensing", ***poster presentation***, ***23rd International Conference on Optical Fibre Sensors (OFS)***, Jun2-9 2014, Santander, Spain.
15. Maria Chernysheva, Alexander Krylov, **Chengbo Mou**, Raz N.Arif, Alex Rozhin, Mark Ruemmeli, Natalia Arutyunyan, Elena Obraztsova, Sergei K.Turitsyn and Evgeny Dianov,"Inversed-modified Soliton Generation in Mode-locked Fibre Laser at Normal Dispersion", ***poster presentation***, ***Optical Sensors***, Jul27-31 2014, Barcelona, Spain
16. Maria Chernysheva, Chengbo Mou, Richard Howe, Guohua Hu, Tawfique Hasan, Sergei Turitsyn, and Alex Rozhin, "Soliton Molecules Generation in DWCNT Mode-Locked Thulium-Doped Fibre Laser", ***poster presentation***, ***Conference on Lasers and Electro-Optics /Europe*** (***CLEO/EU)***, 21-25Jun 2015, Munich, Germany

Invited Talks

1. **Chengbo Mou**, "All-fibre Mode-locked fibre lasers based on Carbon Nanomaterials and Fibre Gratings", ***UK-Russia Scientific Workshop New Advanced Materials and Systems for Photonics and Sensors***, 16-21 Mar, Novosibirsk, Russia, **2014**
2. **Chengbo Mou,** "All-fibre mode locked fibre lasers using carbon nanotubes and fibre gratings" ***Nanophotonics Workshop***, 24-27 Mar, Birmingham, UK, **2014**
3. **Chengbo Mou**, Sergey Sergeyev, Raz Arif, Aleksey Rozhin, Zhijun Yan, Kaiming Zhou, Zuxing Zhang, Veronika Tsatourian, Tatiana Habruseva, Lin Zhang and Sergei Turitsyn, "All-fibre mode locked fibre laser and its polarisation dynamics", ***23rd International Laser Physics Workshop***, 14-18 Jul, Sofia, Bulgaria, **2014**
4. **Chengbo Mou**, Sergey Sergyev, Raz Arif,Aleksey Rozhin, Tatiana Habruseva, Veronika Tsatourian, and Sergei Turitsyn, "Polarisation Dynamics in Carbon Nanotube Mode Locked Ultrafast Fibre Lasers", ***PIERS***, 25-28 Aug, Guangzhou, China, **2014**
5. Lin Zhang, Zhijun Yan, **Chengbo Mou**, Kaiming Zhou, and Zuxing Zhang, "Recent Advances in Tilted Fibre Gratings and Their Application in Mode-locking Fibre Laser Systems", ***PIERS***, 25-28 Aug, Guangzhou, China, **2014**
6. Sergey Sergeyev, Stanislav Kolpakov, **Chengbo Mou**, Vladimir Kalashnikov, Gunnar Jacobsen, Sergei Popov, and Sergei Turitsyn, "Polarisation dynamics of mode locked fibre lasers", ***Northern Optics & Photonics***, 2-4 Jun, Lappeenranta, Finland,**2015**
7. Zhijun Yan, Hushan Wang, Kaiming Zhou, **Chengbo Mou**, Jianfeng Li, Zuxing Zhang, Lin Zhang, Yishang Wang and Wei Zhao,"45º Tilted Fiber Grating Based in-fiber Linear Polarizer and Applications ", ***PIERS***, 8-11 Aug, Shanghai, China, **2016**

Keynote Talk

Chengbo Mou, Maria Chernysheva, Raz Arif, Sergei Turitsyn and Aleksey Rozhin, "Carbon nanomaterial for ultrafast fibre lasers in near and mid infrared", ***Photonica***, 24-28 Aug, Belgrade, Serbia, 2015

Tutorial

Sergey Sergyev, Vladimir Kalashnikov, **Chengbo Mou**, Sergei Popov, Gunnar Jacobsen, "Polarisation phenomena in mode-locked fibre lasers and fibre Raman amplifiers", ***International Conference on Transparent Optical Networks(ICTON)***, Jul 5-9, Budapest, Hungary, 2015

Book Chapters

Chengbo Mou, Zhijun Yan , Kaiming Zhou and Lin Zhang, "Optical Fibre Sensors based on UV Inscribed Excessively Tilted Fibre Grating", ***Optical Sensors***, edited by Moh.Yasin, Sulaiman W.Harun and H.Arof, INTECH, ISBN 980-953-307-1132-1

Zhijun Yan, **Chengbo Mou**, Yishan Wang, Jianfeng Li, Zuxing Zhang, Kaiming Zhou, and Lin Zhang, "45 tilted fiber grating based ultrafast fiber lasers", ***Fiber Laser***, edited by Mukul Paul, INTECH, ISBN 978-953-51-2257-9,2016

Patent

Optical Device, PCT/GB2013/050579, published