

A mechanical model for cross-linked collagen applied to keratoconus

Application to Feasibility Fund

Submission date: 15 October 2020

External Investigators: Anna Pandolfi (POLIMI, Italy)

SofTMech investigators: Peter Stewart, Nick Hill, Xiaoyu Luo

Named Researcher: Jakub Köry

Discrepancy and Uncertainty in Cardiovascular Modelling

Application to Feasibility Fund

Submission date: 15 October 2020

External Investigators: Mette Olufsen and Mitchel Colebank (North Carolina S), Prof Zongxi, Department of Mechanics, Tianjin University, China, Prof. YF Nie, School of Mathematics and Statistics, Northwest Polytechnic University (NPU), China

SofTMech investigators: Professor Dirk Husmeier

Named Researcher: Dr. Mihaela Paun

Statistical Surrogates for Endovascular Drug Delivery Devices

Application to Feasibility Fund

Submission date: 15 October 2020

SofTMech investigators: Professor Dirk Husmeier, Dr Sean M^cGinty

Named Researcher: Dr. Mihaela Paun

Cardiac endotypes in COVID-19: towards quantification and mechanisms of cardiac injury

Application to Feasibility Fund

Submission date: 15 October 2020

SofTMech investigators: Prof Xiaoyu Luo, Prof. Nick Hill, Colin Berry, Kenneth Magnion

Named Researcher: Dr. Scott Richardson

Flow and structure interaction and stability in a deformable vessel

Application to Feasibility Fund

Submission date: 15 June 2020

External Investigators: Prof Zongxi, Department of Mechanics, Tianjin University, China, Prof. YF Nie, School of Mathematics and Statistics, Northwest Polytechnic University (NPU)

SofTMech investigators: Prof Xiaoyu Luo, Dr Peter Stewart

Named Researcher: Dr. Danyang Wang

Feedback in cardiovascular clinical decision support systems

Application to SofTMech Feasibility Fund

Submission date: 15 February 2020

SofTMech investigators: Dirk Husmeier

Named Researcher: Mihaela Paun (University of Glasgow, Maths & Stats)

Testing a new, stochastic, phase-separation-based model that could explain where in cells actin is polymerized

Application to Feasibility Fund

Submission date: 15 February 2020

External Investigators: Adam Dowdell, Insall group; Martin Sweatman, Chemical Engineering, Edinburgh; Klemens Rottner, Helmholtz-Zentrum für Infektionsforschung

SoftMech investigators: Prof Robert Insall, Prof Xiaoyu Lu

Named Researcher: Dr Luke Tweedy

Cardiac Electrophysiology, Fibroblasts and agent-based model of the left ventricle, post-myocardial infarction

Application to SoftMech Feasibility Fund

Submission date: 15 February 2020

External Investigators: Prof Gernot Plank

SoftMech investigators: Dr Radostin Simitev. Dr Hao Gao. Dr Xin Zhuan.

Named Researcher: Peter Mortensen (University of Glasgow, Maths & Stats)

Poroelasticity modelling of the heart – Towards a rational fracture criterion for soft tissues art – linking microscopic vessel network to tissue

Application to SoftMech Feasibility Fund

Submission date: 15 February 2020

SoftMech investigators: Dr. Peter Stewart, Prof. Nick Hil, Dr Steven Roper

Named Researcher: Gordon McNicol

Poroelasticity modelling of the heart – linking microscopic vessel network to tissue

Application to SoftMech Feasibility Fund

Submission date: 15 January 2020

External Investigators: Prof Mette Olufsen, School of Mathematics, North Carolina State University

SoftMech investigators: : Prof Nick Hill, Prof. Xiaoyu Luo

Named Researcher: Jay Mackenzie (University of Glasgow, Maths & Stats)

Cell-to-cell variability in rabbit ventricular myocytes: upscaling from cells to tissues

Application to SoftMech Feasibility Fund

Submission date: 15 October 2019

External Investigators: Institute of Cardiovascular & Medical Sciences: Drs Francis Burton, Quentin Lachaud, Niall MacQuaide, Dr Rachel Myles

SoftMech investigators: Dr Radostin Simitev, Prof Godfrey Smith

Named Researcher: Mr Muhamad Hifzhudin Bin Noor Aziz (University of Glasgow, Maths & Stats)

Probing and modelling cell-matrix interaction and cell invasion under hypoxia- Extension

Application to SoftMech Feasibility Fund

Submission date: 15 October 2019

External Investigators: Beatson Cancer institute: Dr Sara Zanivan, Professor Jim Norman, Dr Leo Carlin

SoftMech investigators: Huabing Yin, Mark Chaplain, Steve McDougall, Ray Ogden

Using advanced CMR techniques and computational modelling in female volunteers to detect pump function changes in cancer patients

Application to SoftMech Feasibility Fund

Submission date: 15 October 2019* delayed start due to COVID; start date:

External Investigators: Dr Ninian N Lang (University of Glasgow and Beatson Oncology Centre, UK), Prof Frederick H Epstein (University of Virginia, US)
SoftMech investigators: Dr Kenneth Mangion, Dr Hao Gao, Prof Colin Berry

Application for funding a 3-month feasibility study for SoftMech

Application to SoftMech Feasibility Fund

Submission date: 15 October 2019

SoftMech investigators: Dirk Husmeier, Alan Lazarus, Agnieszka Borowska and Hao Gao

Multi-sequence segmentation of ventricles from LGE CMR: a hybrid automatic approach

Application to SoftMech Feasibility Fund

Submission date: 15 June 2019

External Investigator: Dr. Jinchang Ren (University of Strathclyde)

SoftMech Collaborators: Dr. Hao Gao, Dr. K. Maginon, Prof. C. Berry (University of Glasgow)

A mathematical model for nanokicking, quantifying its effect on cell structure and binding.

Application to SoftMech Feasibility Fund

Submission date: 15 February 2019

SoftMech investigators: Peter Stewart and Matthew Dalby.

Probing and modelling cell-matrix interaction and cell invasion under hypoxia.

Application to SoftMech Feasibility Fund

Submission date: 15 February 2019

External Investigators: Beatson Cancer Sara Zanivan Institute, Jim Norman & Leo Carlin.

SoftMech investigators: Huabing Yin; Mark Chaplain; Steven McDougall and Raymond Ogden.

Conduction block and front breakup action due to action potential amplitude (APA)

Altermans in post myocardial infarction rabbit ventricular tissue

Application to SoftMech Feasibility Fund

Submission date: 15 February 2019

External Investigators: V Biktashev (University of Exeter); R Myles (Institute of Cardiovascular & Medical Sciences, University of Glasgow), and Prof F Fenton (Georgia Institute of Technology, Atlanta, USA).

SoftMech investigators: : Radostin Simitev; G Smith & P Mortensen.

Title:

Application to SoftMech Feasibility Fund

Submission date: 15 October 2018

SoftMech investigators: Dirk Husmeier, Agnieszka Borowska and Hao Gao.

Development of AI-Segmentation and Registration for Heart Imaging

Application to the SoftMech Feasibility Funds and Liverpool Centre Funds

Submission date: 01 August 2018

Liverpool Investigators: Yalin Zheng, Anis Theljani, Ke Chen.

SoftMech investigators: Hao Gao, Alan Lazarus, Kenneth Mangion, Dirk Husmeier, Xiaoyu Luo, Nick Hill.

Collaboration on soft tissue modelling between SoftMech and Prof. RK Rajagopal from Texas A&M University.

Application to the New Collaboration Fund

Submission date 15 June 2018

External Investigator: Prof. RK Rajagopal, Texas A&M University.

SoftMech Lead Applicant: Xiaoyu Luo

Region-Specific Microstructural and Biomechanical Variation in Mature Porcine Tissue

Application to the SoftMech Feasibility Fund

Submission date: 15 June 2018

External Investigator: Dr P Theobald, Cardiff University.

Characterising the microstructure and mechanical properties of myocytes by nano/microfluidics enabled atomic force microscope

Application to the SoftMech Feasibility Fund

Submission Date: 15 June 2018

External Investigator: Dr. Jinju (Vicky) Chen (Lecturer, Newcastle University).

SoftMech Collaborators: Profs Ray Ogden & Xiaoyu Luo (University of Glasgow).

Feedback in cardiovascular clinical decision support systems

Application to the SoftMech Feasibility Fund

Submission Date: 15 February 2018

SoftMech investigator: Dirk Husmeier

Mathematical Modelling of bladder mechanobiology during development and aging.

Application to the SoftMech Feasibility Fund

Submission Date: 15 October 2017

External Investigator: Professor Anne Robertson, Dept. of Mechanical Engineering and Materials Science, University of Pittsburgh.

SoftMech Collaborator: Dr Paul Watton, Lecturer Computer Science at the University of Sheffield (UoS), holds an adjunct position at Pittsburgh.

A fast solution for personalized human ventricular model using FEAP

Application to the SoftMech Feasibility Fund

Submission Date: 10 October 2017

External Investigator: Dr. Thomas Eriksson (Senior Scientist, Division of Defence and Security, Systems and Technology, FOI Swedish Defence Research Agency).

SoftMech Collaborator: Dr. Hao Gao (Research Fellow, University of Glasgow).

MRI analysis of rabbit hearts after myocardial infarction

Application to the SoftMech Feasibility Fund

Submission date: 15 December 2016

SoftMech investigators: Prof Godfrey Smith, Dr Radostin Simitev, Prof Xiaoyu Luo,

Mr Peter Mortensen(University of Glasgow)

External Partners:Prof Olivier Bernus (Liryc - Bordeaux University Hospital, University of Bordeaux, Cardiothoracic Research Center of Bordeaux)

Analysis of data on epicardial electrical activation of rabbit hearts in chronic myocardial infarction

Application to the SoftMech Feasibility Fund

Submission date: 15 June 2017

SoftMech Collaborators: Prof Godfrey Smith, Dr Radostin Simitev, Dr Hao Gao, Mr Peter Mortensen (University of Glasgow)

External Partners: Dr Andrew Allan, Advanced Imaging Specialist at Cairn Research Ltd

The H2020 European Training Network call.

Application to the SoftMech Feasibility Fund

Submission date: 15 June 2017

National University of Ireland Investigator: Professor Michel Destrade

SoftMech investigators: Professor Raymond Ogden

Modelling arterial healing subject to drug delivery from coronary stents: a feasibility study

Application to the SoftMech Feasibility Fund

Submission date: 15 June 2017

External Investigators: Dr Christopher McCormick (University of Strathclyde), Prof Keith Oldroyd (Golden Jubilee National Hospital)

SoftMech Collaborators: Prof. Xiaoyu Luo and Dr Sean McGinty (University of Glasgow).