2017 YCCSA SUMMER SCHOLARSHIP PROJECT SUBMISSION

This form is for prospective project supervisors to submit their projects to be included in the YCCSA Summer Scholarships Programme for 2017.

It is the purpose of the YCCSA Summer School that any projects submitted are novel and interdisciplinary in nature.

Date	*12-12-2016*
Supervisors' Names and Departments / Affiliation and Contact Email	Angelika Sebald, YCCSA and Dept. of Chemistry David Mitchell, YCCSA and Calderdale and Huddersfield NHS Foundation Trust Yvette Hancock, YCCSA and Dept. of Physics Meghan Halse, Dept. of Chemistry angelika.sebald@york.ac.uk david.mitchell@york.ac.uk y.hancock@york.ac.uk meghan.halse@york.ac.uk
Project Title	Everything you always wanted to explain about the physics of medical imaging methods* (*but were afraid to try)
Project Description	We are building a comprehensive and fully validated website with information for maxillofacial patients (many of whom are head & neck cancer patients), carers and professionals – maxfacts. Maxfacts is a multidisciplinary project including medical and scientific expertise, web design and usabiltity / accessibility aspects, media provision. We are planning to launch a public beta-version of maxfacts in June 2017. All information on maxfacts is provided in three levels of breadth/depth of information: level1 – short and easy to read; level2 – slightly more technical and more content, jargon explained; level3 – expert level, including language. We use many different ways to provide information: text based (different levels), integrated with graphics and photographs, video material. The general theme of the physical principles of a whole range of imaging techniques used for clinical purposes (MRI, CT, PET, ultrasound), as well as image reconstruction and simulation methods, 3D printing techniques and similar techniques (relevant for reconstructive surgery and restorative dentistry) would benefit enormously from a far more in-depth discussion and appropriate explanation than is possible and reasonable within the regular level 1,2,3,structure of information provision on maxfacts. Our website architecture allows for additional spin-out pages to be accommodated for such purposes (for example, we have such additional pages about texture modification of foods). Such in-depth discussion and explanation is required because of the rapid technological and scientific developments in that area. As far as the physics (and maths) of imaging techniques are concerned, this is as much about future-proofing a comprehensive information resource for a wide range of users, maxfacts, as it is about making an effort to properly explain hard-core science to non-scientists.

Required Skills	Expertise and sound understanding of the physics underpinning all the techniques mentioned; an interest in science and medical science communication by electronic tools. Willingness to interact with interdisciplinary team and to obtain feedback from users, including patients.
Supervision and Collaboration Arrangements	All supervisors will play an active part in regular project supervision, with Sebald taking responsibility for day-to-day activities.
Project Dates	*The summer school runs for 9 weeks, starting on Monday, 10 July 2017 and finishing on Friday, 8 September 2017.*
Other Information	Maxfacts currently runs on a local virtual machine and is not yet publically accessible, Please contact us for further information and details.
References	A previous summer project was concerned with the design and implementation of a novel interactive self-assessment tool. The results are currently in press (R.Brown, L.Tomasello, D.A.Mitchell, A.Sebald and S.Stepney. The ternary graph as a questionnaire – a new approach to Quality of Life assessment? *Br.J.Oral Maxillofac. Surg*., accepted (2017)). Source code (https://github.com/laurenkt/magic-triangle) and a demo version of the tool (https://laurenkt.github.io/magic-triangle/) can be accessed on GitHub.

When complete, please email the form to sarah.christmas@york.ac.uk