Professor Powell is a Professor of Chemical Engineering and Materials Science and also a Professor of Food Science and Technology at the University of California Davis. From 2002 until 2011 he was the Chair of the Department of Chemical Engineering and Materials Science. In academic year (AY) he served full time as the Vice Chair of the Academic Senate of the University of California System and in AY 2012-2013 he will be Chair of the Systemwide Academic Senate. He has held temporary positions at the Swedish Forest Products Research Laboratory, Sandia National Laboratory and the National Science Foundation. Professor Powell's research is focused on a variety of issues related to the fluid mechanics and rheology with applications to foods, fiber suspensions and other biological systems. He has published over 110 papers in peer-reviewed journals ranging from the Journal of Applied Physiology to the Journal of Rheology, Journal of Fluid Mechanics, Physics of Fluids and Journal of Food Science. His research interests include the development of new sensors for monitoring processes, modeling of complex systems and transport processes in complex fluids, especially fibrous suspensions. He has been a pioneer in the development of novel experimental techniques, especially magnetic resonance imaging, for studying systems of direct industrial relevance. He is a member of the Society of Rheology, American Institute of Chemical Engineers, American Chemical Society and the American Physical Society. He is also a Fellow of the American Physical Society.

The University of California Davis has a longstanding interest in fiber suspensions and the development of novel techniques to study these systems. Professor Powell and Professor Mike McCarthy has a collaboration that is over decades old which has addressed significant issues. They pioneered the use of magnetic resonance imaging to study complex fluids and in the 1900s applied this to fiber suspensions They undertook groundbreaking studies which were able to follow flow transitions in pulp suspensions undergoing pipe flow. They also used this technique to study sedimentation of fibers. Recently, they have applied their knowledge and techniques to study processing of fiber suspensions as related to the development of processes for making cellulosic ethanol. They have expanded their fluid mechanics and rheology studies of pulp suspensions to examine mass transfer, mixing and reacting systems. Two years ago, Tina Joeh joined the faculty of the Department of Biological and Agricultural Engineering. Her interests relate to cellulose chemistry and complement those of Powell and McCarthy. These three will form the principal team from UC Davis.

Powell and McCarthy also enjoy a strong collaboration with the Royal Institute of Technology in Stockholm as well as Inventia. These collaboration round out the expertise to make substantial contributions to fiber suspension science and technology.

Participation in the COST Action promises several advantages for the University of California Davis. The best institutions in the world with long term interest in fiber science and technology are located in Europe. This will allow the range of activities at UC Davis to benefit from visits from senior scientists and students from Europe. Conversely, UC Davis researchers will deepen their expertise by spending time at European institutions. The specific benefit of participating with the COST Action means that the unique UC Davis facilities can be integrated into the framework of fiber

suspension research in Europe. Further, UC Davis will be expanding its faculty over the next five years. Successful participation in the COST Action makes it possible for UC Davis to expand its activities in fiber science, suspension mechanics and rheology.

The University of California of California Davis will undertake comprehensive measurements that can be used for benchmarks in modeling studies. Critical to the development of any computational technique is the need for verification and validation. UC Davis will work with those doing modeling to validate their computer codes by identifying specific benchmark experiments related to fluid mechanics and rheology of fiber suspensions. We will encourage those doing modeling studies to come to UC Davis to participate in the experimental work. Similarly, we will participate in the modeling work through visits to other institutions and also through on-going collaborations enabled by technology. The UC Davis group will work with the modeling groups to identify not just model experimental configurations but also the actual suspensions to be used. Both model and real suspensions will be employed in the experiments. Further, the UC Davis group will develop collaborations with other groups doing experimental work. The magnetic resonance imaging technique can complement other methods that apply to very dilute or model systems, such as particle image velocimetry or laser Doppler velocimetry.

The participation of the University of California Davis in this COST Action brings a new suite of experimental techniques for critical work that is central to fiber suspension research. This will complement both the modeling efforts and other experimental methods that are used in research centers and universities in Europe. At UC Davis, the success of this effort promises to influence future investments in both faculty positions and research. UC Davis should remain pivotal to future developments in fiber suspension research and this effort may expand more broadly.
From the side of our European collaborators, UC Davis participation allows them to help plan next generation experiments using state-of-the-art magnetic resonance imaging techniques. Further, these experiments can be undertaken immediately as the instrumentation is fully implemented and the research team is in place. This allows work to undertaken on an accelerated timeline with benchmark experiments being performed for computational validation.