Library Correctness for Multicore C / C++

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Where: Jakob-Haringer-Str. 2, Room T03

When: Thursday, June 20, 2013, 16:00 Uhr c.t.

Mike Dodds will discuss the problem of specifying concurrent library code on multicore processors. Most multicore systems permit relaxed-memory effects, where different threads can observe different, apparently contradictory orders of events. Concurrent library code must use synchronisation to avoid unwanted relaxed effects. However, to avoid expensive synchronisation, libraries may allow clients to observe some relaxed-memory effects, and library specifications must capture these. In this talk, I will focus on the relaxed-memory primitives offered by the new ISO C11 / C++11 standard. I will give an informal introduction to relaxed memory and the C11 model, and I will describe a criterion for abstraction (based on linearizability) which can relate library methods to relaxed specifications. This new criterion represents the first sound technique for specifying C11 / C++11 code.

Mike Dodds obtained his PhD from York in 2004, and subsequently spent five years as a postdoc in the Computer Lab in Cambridge. He recently returned to York as an Anniversary Research Lecturer. He is interested in concurrency, algorithm verification, and relaxed memory models.

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