Center for Biomedical Computing

Planned milestones	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Navier-Stokes solvers with adapt./error est.	-xxx	xx--									
Organize workshop on computational middleware	-xxx	xx--									
Software release, PDE components	-xxx	xxxx	xxxx	x---							
Biomedical flows, fixed geometries	-xxx	xxxx	xxxx	xx---							
Software release, fluid flow components	-xxx	xxxx	xxxx	x--							
Study implicit solvers for Navier-Stokes eqs	-xxx	xxxx	xxxx	xxxx	xxxx	x---					
Organize workshop on robust flow solvers		-xxx	xx--								
Organize workshop on biomedical flows			-xxx	xx---							
Publish a joint proceedings from the workshop					xxxx	x---					
Software release, library components					xxxx	xxxx	x---				
Biomedical flows, fluid-structure interaction					-xxx	xxxx	xxxx	xxxx	xx--		
Fluid flow solvers, dynamic geometries						xxxx	xxxx	xxxx	x---		
Exploration of turbulence models						xxxx	xxxx	xxxx	x---		
FEniCS 1.0 release						---x					
Publish book on FEniCS						x---					
International workshop on computer models for heart failure						xxxx					
International workshop on software for cardiac modeling							xxxx				
2012-2017 Biannual workshops where leading international researchers present their work							xxxx		xxxx		x---
2012-2017 Biannual international workshops within topics of FEniCS, HPC, adaptivity and model calibration						-xx-		-xx-		-xx-	
Automated spatio-temporal adaptivity and error control integrated in FEniCS						xxxx					
Development of FSI tools for overlapping and non-matching meshes						xxxx					
Develope and explored models for coupled flow and deformation to explain CSF-flow induced cyct formation in the spinal chord					xxxx	xxxx	xxxx				
Release of a general cardiac electro-mechanics model in FEniCS						xxxx	xxxx				
First version of model calibration toolbox						xxxx	xxxx	xx--			
FEniCS features user-friendly support for mesh generation and visualization						xxxx	xxxx	xxxx			
Study of implicit solvers for Navier-Stokes equations and turbulence models						xxxx	xxxx	xxxx			
Validat a general electro-mechanics model for heart failure						-xxx	xxxx	xxxx			
Fluid Flow Components and official release of cbc.solve module						xxxx	xxxx	xxxx			
cbc.solve contains competitive solvers for laminar and turbulent flow, hyperelasticity, fluid-structure interaction, and cardiac electro-mechanics							xxxx	xxxx	xxxx		
Release of a flexible open source model calibration toolbox							xxxx	xxxx	xxxx		
Develop operative, effective FSI solvers for blood flow						-xxx	xxxx	xxxx	xxxx		
Release of a deterministic inverse problem solver in the model calibration toolbox, with application examples from patient specific blood flow							xxxx	xxxx	xxxx		
FEniCS is able to deliver good parallel performance utilizing 10000+ CPU cores					xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Completed large-scale (100) patient specific studies in the blood and CSF flow subprojects						xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Study uncertainty in patient-specific blood flow						xxxx	xxxx	xxxx	xxxx	xxxx	
Developed and explored FSI models for the mitral valve, also coupled to electrophysiology							xxxx	xxxx	xxxx	xxxx	xxxx
Organize FEniCS short courses and tutorials						xxxx	xxxx	xxxx	xxxx	xxxx	
cbc.solve should rate among leading FEM software for simulating transitional flow in complex and deformable geometries											x---
Understand turbulent transition in blood flow and CSF flow. A paper summarizing the findings should be published in an high impact journal											x---
Publish a book on biomedical flows and structures summarizing the CBC research in this field and made accessible for students in computational sciences.							xxxx	xxxx	xxxx	xxxx	x---
Establish at least one university course in biomedical modeling										xxxx	x---
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