



# Center for Biomedical Computing

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

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017