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13. ABSTRACT (Maximum 200 words) A committee to identify future directions for ONR supported basic research in Solid and Structural Mechanics was formed with the committee members representing the Solid and Structural Mechanics fields that most impact Navy applications. The committee conducted deliberations and met with Navy personnel to identify areas of basic research in Solid and Structural Mechanics that will have a significant impact on future Navy needs. Between meetings, committee deliberations were conducted by email. A final written report was written and the contents of the report were presented at ONR headquarters.				
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Contract Title: Future Directions for Solid and Structural Mechanics

Summary

A committee to identify future directions for ONR supported basic research in Solid and Structural Mechanics was formed in December 1995. The committee members were selected by ONR to represent the Solid and Structural Mechanics fields that most impact Navy applications; the committee members were T. Belytschko, Walter P. Murphy Professor of Computational Mechanics and Chair of Mechanical Engineering, Northwestern University, Member National Academy of Engineering; M.M. Bernitsas, Professor and Chair, Department of Naval Architecture and Marine Engineering, University of Michigan; R. Christensen, Senior Scientist, Lawrence Livermore National Laboratory and Research Professor, Stanford University, Member National Academy of Engineering; D.G. Crighton, Professor of Applied Mathematics and Head, Department of Applied Mathematics and Theoretical Physics, Cambridge University, Master of Jesus College, Cambridge, Fellow of the Royal Society of London; L.B. Freund, Henry Ledyard Goddard University Professor and Professor of Engineering, Brown University, Member National Academy of Engineering, Member National Academy of Sciences; H.D. Hibbitt, President, Hibbitt, Karlsson & Sorensen, Inc.; J.W. Hutchinson, Gordon McKay Professor of Applied Mechanics, Harvard University, Member National Academy of Engineering, Member National Academy of Sciences; A. Needleman (Chair), Florence Pirce Grant University Professor and Professor of Engineering, Brown University; P.T. Pedersen, Professor of Naval Architecture and Offshore Engineering, and Leader of the Mechanical Engineering, Energy and Production Sector, The Technical University of Denmark, Member Danish Academy of Technical Sciences. The first committee meeting took place at Office of Naval Research headquarters on January 29, 1996 at which time the scope of the study was defined: namely, to identify areas of basic research in Solid and Structural Mechanics that will have a significant impact on future Navy needs. A preliminary report was prepared in April 1996. This preliminary report received limited circulation within ONR and other branches of the Navy. A second meeting was held at the Naval Surface Warfare Center, Carderock Division on April 29-30, 1996 at which time the committee and Navy personnel discussed the preliminary report. The committee met in Baltimore on June 11, 1996 to initiate preparation of the next draft of its report, which was completed in October 1996. This report was circulated more widely, including to some members of the Solid and Structural Mechanics research community. The report was continually revised as suggested changes were received. A meeting of the committee with Dr. Roshdy Barsoum of ONR took place at Brown University on August 15, 1997 at which time additional input was received. Between meetings, committee deliberations were conducted by email. The final report was completed in September 1997 and published as Brown University Report 5M-97. The contents of the report were presented at ONR on March 20, 1998.