SMALL BODIES ROADMAP OUTLINE: IN-SITU STUDY

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I. Introduction: The diversity of Small Bodies

II. Science questions for small bodies with measurement requirements (a few examples)
   Composition/mineralogy
   Hydration
   Organics
   Internal structure
   Surface properties
   Regolith structure/properties
   Thermal properties
   Coalitional evolution
   Binaries: Creation and evolution
   Gravitational environment

III. Space-Qualified instruments currently available.
   Will produce a comprehensive list of in-situ instruments

IV. Instruments in development or proposed
   Will develop a comprehensive list of instruments in development or proposed matched with science questions

V. In-situ sample processing and preparation
   Will address the requirements for sample processing and preparation to achieve in-situ measurement goals

VI. Instrument delivery methods and mechanisms
   Will develop a comprehensive list of instrument delivery methods and mechanisms including lists of those qualified, in-development, and proposed.
   Probes
   Drop packages
   Anchoring technologies
   Sub-satellites
   Autonomous landers
   Autonomous operations
   Spacecraft mounted
VII. Ground-based laboratory support requirements

VIII. Instrument development challenges and technology requirements

IX. Programs to catalyze necessary technology