2023/2024 International Advisory Board report, X-Chem

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In the context of the original X-chem proposal, the International Advisory Board has reviewed the materials we were provide regarding the project advancement. In short, it is the committee's opinion that the X-Chem project has met or exceeded its proposed project deadlines and goals in each of the 4 areas of review.

Recruiting. A key goal of the funded grant is the targeted recruitment of new talent, which, in turn, will open new research lines and foster the formation of strong, multidisciplinary teams. To date, the recruitment of these faculty and staff has met the proposed schedule. Specifically, the center has onboarded 1 Associate Professor (Bizzarri), 4 Research Associates, 1 technical staff member, and one administrative staff member. Three more positions are currently in process: 1 Research Associate and 1 technical staff member, for which a call will soon be published, and an administrative staff member, the search for which is currently ongoing. Given the significant administrative burdens associated with recruiting and filling such positions, the center's pace has been impressive.

Research. The research carried out in the past couple of years has demonstrated strong progress and achievements, marked by a significant number of secured research grants and a broad portfolio of high-impact publications. These accomplishments reflect the dedication and scientific excellence of the department, as well as the strategic vision that has guided their efforts. In addition to these tangible outcomes, it is particularly noteworthy that internal collaborations have increased considerably. This growing spirit of interdisciplinary cooperation, which was a focus of the proposed efforts, has not only strengthened the scientific community within the institution but also fostered the exchange of knowledge and expertise, leading to more innovative and comprehensive research projects. Overall, the collective efforts and commitment to cutting-edge research continue to drive significant advancements and further solidify the institution's position as a leader in scientific innovation and excellence.

Infrastructure. Under the auspices of the X-chem award, 2 key instruments were purchased and installed in a renovated laboratory space. These are a high-performance MicroRaman (MR) spectrometer and a Field Emission Scanning Electron Microscope (FIB-SEM). The acquisition of an Atomic Force Microscope (AFM) is currently underway and expected to be completed within the original timeline of 36 months. Existing equipment selected for upgrades include a Flash Chromatography system, Differential Scanning Calorimeter, NMR Console Avance III HD 700 MHz, and Laser Flash Photolysis system. In addition, various instrument accessories have been identified and the process initiated for instrument upgrades. Overall, the objectives of purchasing and installing top-of-the-line instrumentation and upgrading existing equipment have been met.

Education. A commendable success in the area of education is the redesign of the Chemistry Masters' degree program. It is also commendable that the stipend for PhD students has been increased. Which is critical if the department hopes to compete in attracting the strongest candidates from across Italy and Europe. In this light, we note that two thirds of enrolled students

for the PhD in Materials for Sustainable Development in the last cycle have joined Tor Vergata from other universities. The lecture courses for DSTC students from external visiting staff are a notable contribution. Both PhD courses are producing healthy numbers of publications and strong evidence of student participation in national and international meetings, and there have been many international exchange visits. All of these provide valuable student training. In short, it is clear that the education program is meeting its goals.