

## **Institutional Membership in the ADSC (from the RSEC proposal)**

*C2a. Participants in the ADSC and their Roles.* The Advanced Diffraction Studies Consortium, ADSC, is centered on a group of institutions running along the south shore of Lake Erie from Toledo to Pittsburgh, namely those in northern Ohio and western Pennsylvania. This group is regionally concentrated to retain our intellectual focus and to keep our resources concentrated into a critical density. These boundaries have been expanded somewhat for the sake of including predominantly undergraduate institutions where these and/or their faculty have a history of collaborations with the host institutions and for several historically black colleges from outside our immediate area that have strong reputations for graduating chemistry majors and that have expressed an interest in participating. The consortium will have institutional members that fit into two main categories. The first is “host institutions” at which the bulk of the consortial research and faculty development activities will take place. The second is “participating institutions/home institutions” from which the bulk of the undergraduate faculty and students will come. There will be some overlap in these two categories, especially for institutions whose highest chemistry degree is the MS. To complicate this overly neat division, some faculty and students from PhD schools will participate as “users” in consortium funded activities (e.g., the summer courses) while some undergraduate faculty will act as course instructors and research mentors.

*Youngstown State University* has been designated the *Lead Institution* for the ADSC in this proposal. YSU and its Chemistry Department has volunteered for this role which is centrally related to their declared missions; which are to become a Premier Metropolitan University and a benchmark MS level Chemistry Department (i.e., “top ten”). YSU has long served as an intermediary between the PhD research institutions and predominantly undergraduate institutions in several major research consortia in Ohio (i.e., the Ohio MS, NMR, and Crystallography Consortia) and YSU faculty have close contact with participating institutions. To demonstrate its commitment to the importance of the ADSC, it has provided substantial internal resources to this project including faculty and staff time having a value of \$792,283, including: \$79,200 of new money to support the Diffraction Laboratory Scientist, \$398,000 in cash funds for requested diffraction equipment, \$95,000 for renovations and increased maintenance funds, and a \$100,000 reduction in the housing fees for ADSC participants in activities at YSU. It has also allowed us to structure the budget so that only about 5% of the total budget is lost to overhead.

The formal *Managing Institution* for the ADSC proposal to the RSEC is Case Western Reserve University, CWRU, which has extensive experience in this role and a long history of collaborations with many ADSC participants, including YSU. We request that the award be made to CWRU which will subcontract the execution of this project to YSU. CWRU will maintain an oversight role on the Advanced Diffraction Studies Consortium’s activities and, in particular, will assist YSU and other consortium members with budgetary questions.

Dr. Allen D. Hunter from YSU is the ADSC Director and PI of this proposal. Since 1987 he has been the PI or a major co-PI on external grants totaling 1.2 million dollars to support his personal research, scientific instrumentation purchases, and/or educational initiatives. While at the University of Alberta and Youngstown State University, he has mentored several dozen post doctoral fellows, research associates, and PhD, MS, BS, and high school research students. He is on the governing bodies of the Ohio MS, NMR, and Crystallography Consortia where he serves as the representative of predominantly undergraduate institutions and he founded the YSU Structure Center. He has active research collaborations with faculty at research universities, predominantly undergraduate schools, and in industry. He therefore has both the experience to carry out the duties of the ADSC Director and PI of this grant and the confidence of the participating institutions and individuals. To support his role, YSU has committed to a 100% reduction in his teaching duties for the first year of this grant (to ensure a smooth start), a 50% reduction for the other 4 years, and a 50% reduction during the following year when he will help “wind up” the grant, assess, report, and disseminate its results, and develop continuing activities for the consortium.

*C2a(i). PhD Granting Host Institutions.* Faculty from the following *PhD granting host institutions* have agreed to participate and these schools will provide the sites for most of the advanced diffraction methods collaborative research (providing research mentors and advanced diffraction facilities) and sites for some of the advanced diffraction methods courses: Carnegie Mellon University, Case Western Reserve University, Duquesne University, The University of Akron, the University of Pittsburgh, and the University of Toledo.

*C2a(ii). MS Granting Host Institutions.* Faculty from the following *MS granting host institutions* have agreed to participate and these schools will provide the sites of the basic diffraction methods courses, some of the research sites/facilities (especially those available for remote data collection), and many of the course instructors: Bucknell University, Indiana University of Pennsylvania, Wright State University, and Youngstown State University.

*C2a(iii). Non-University Host Institutions.* We will also include the following *Non-University Host Institutions* at which some of the collaborative research projects will take place: the Advanced Photon Source MB-

CAT, the Cleveland Clinic Foundation, the Cleveland Center for Structural Biology, the NASA Lewis Research Center, and the Oak Ridge National Laboratory.

*C2a(iv). Participating Institutions (i.e., the Predominantly Undergraduate “Home” Institutions).* These include institutions from which individuals have already indicated that they would like to participate in the Consortium’s activities in some fashion (e.g., as research mentors/collaborators, as course participants/instructors, and/or as applicants for consortial research support). The predominantly undergraduate institutions listed below are those in our region from which faculty members will be eligible to apply for consortium research support and those from outside our region whose faculty have expertise in crystallographic/diffraction methods education and have volunteered to act as summer school instructors. In addition, several historically black institutions outside our immediate region are also included. The following is a listing of the *participating (i.e., home) institutions* which have already committed themselves to the ADSC. MS/PhD granting participating institutions: Cleveland State University and Miami University. Predominantly Undergraduate Participating Institutions: (degree granting 4 year institutions) Allegheny College, Bowie State University, Clarion State University, Gannon University, Hiram College, John Carroll University, Kenyon College, Lincoln University of Pennsylvania, Mercyhurst College, Morgan State University, Mount Union College, Oberlin College, Ohio Northern University, Penn State Erie-The Behrend College, Saint Francis College, Slippery Rock University, Thiel College, Washington and Jefferson College, and Westminster College and (2 year community colleges) Kent State University-Stark Campus, Lorain County Community College, and Wayne College Community College of the University of Akron. Over a dozen others are in our immediate region and will be eligible to apply for ADSC funding.

*C2a(v). Associate Members.* Individual schools and school districts will be eligible to participate in consortium activities. YSU and its faculty are already working closely with the Youngstown City Schools and various schools in Mahoning and Trumbull counties. Additional schools and school districts will be added over the next year as our outreach activities develop.

*C2a(vi). Industrial Partners.* The current academic members of the ADSC have a long history of collaborations with regional industrial companies and diffraction equipment suppliers that are now members of the ADSC, these include: Bruker AXS, Delphi Packard Electric, Dow Agrochemicals, Ferro Corp., Goodyear, Molecular Structure Corporation, and Zincoa.