Spectra 2018, presented by the Australian Network for Art and Technology (ANAT) in collaboration with the University of South Australia and Experimenta Media Arts, surveyed the current array of art-science practice and research across Australasia and interrogated the impact of inter- and transdisciplinary research and practice upon the arts, sciences and individual practices involved.

The Adelaide event consisted of a peer-reviewed symposium, a curated exhibition and performance program, workshops and a series of public events. Artists and scientists approach creativity, exploration and research differently; together, they open up new ways of seeing, experiencing and interpreting the world. Spectra 2018 explored the increasing convergence of art and science and considered how each area impacts the other and how, together, they shed light on who we are and where we are going.

Spectra’s first iteration, in 2012, was instigated by artist Mary Rosengren and CSIRO scientist partner Cris Kennedy. Spectra 2012 brought together some of Australia’s leading artists and scientists to discuss the use of images and data in the studio and the laboratory. In 2018 Spectra was reimagined as a showcase for research and creative work being produced through interdisciplinary collaborations between Australian and New Zealand artists and scientists.

The texts that follow in this and future issues of Leonardo are a selection of abstracts from the symposium papers presented at Spectra 2018. The texts arise from a wide range of artistic practices and a similar diversity of scientific disciplines. Artist-researcher Jill Scott, a pioneer of art-science collaboration in Australia and Switzerland, presented the symposium keynote. Scott proposes the incubator as the key metaphor or concept for successful art-science collaboration. In this special section, we can observe just how many forms an incubator can take and the diverse disciplinary contexts in which they can successfully foster creative collaborations.

The artistic disciplines that are mapped across these examples include new media, bio-art, conceptual and postconceptual practices, photography and moving image, digital visualization, interactive installations and performance environments, music and sound (including new musical instruments), textiles, theater, sculpture, painting, relational practices, site-specific art and live art. Scientific disciplines involved include astronomy, microbiology, computing, material, life and environmental sciences, engineering, physics, medical sciences and data visualization. Research foci include stem-cell research, ecological research, quantum mechanics, tissue culturing, artificial intelligence, surveillance, machine-vision, robotics, particle physics and organism regeneration and human simulations.

The research teams associated with each project offer diverse motives for their activities. While some collaborators celebrate the potential of art-science collaboration to offer positive solutions for, or perspectives upon, the world, for others, a dystopian vision drives their interest, as they seek to reverse-engineer and problematize what are often seen as the exclusionary black-boxes of both the sciences and the arts. Some collaborators simply seek the opportunity to explore new forms of knowing and understanding through cross-disciplinary collaboration.

The Spectra symposium was organized as a series of thematic panels—reflecting emergent themes in the peer-reviewed abstracts—engaging a series of topics including materiality, visualization, nano-optics, interspecies relations, contexts (historical, technological and other), systems, environment, bio-science, the submolecular and empathy. For publication we follow this structure, with groups of abstracts comprising each theme being presented across a series of issues of Leonardo journal.