Within the past several years, architectural discourse has undergone a radical shift regarding questions of matter and materiality. If part of the posthumanist project has been to replace previously constructed boundaries among humans, technology, and the environment with intertwined hybrids, it is also possible to extend this thinking to the field of architecture and the breakdown of the Albertian (humanist) paradigm that separated acts of drawing and building. The disciplinary antagonism that had stood for many years between representation and materialization, between form and matter, has now given way to much more fluid and reciprocal methods of thinking and working through the interrelations among matter, form, structure, and notation. Within this paradigm, which underlies the work in the *Programmable Matter*, *Generative Robotics*, and *Material Frontiers* sections, formational and performative agency is shared among designer, material, computational procedures, and often, environmental forces.

This section gathers papers that currently operate at the fringes of material experimentation within computational design, and anticipates the increased centrality of this research within the field as a whole. The following papers can be grouped into two distinct categories of investigation. The first group, which includes the papers by Tabbarah, Beaman, Clifford, and Twose and du Chantenier, focuses on questions of material agency that have only recently entered computational discourses. These include discussions around aesthetics, material ontology, and irregular formation that splinter dichotomous definitions of natural/non-natural, stable/unstable, familiar/unfamiliar, and planned/accidental, and that position computational design within concerns that extend beyond instrumentality and performance.

The papers that comprise the second group, including those by Estévez, Dade-Robertson, Sollazzo, Franzke, and Derme, are specifically engaged in experimentation with synthetic biology intended toward architectural applications. While computational design has a fairly well established trajectory of exploration into the use of technologies that translate biological behaviors into morphogenetic codes and protocols for architectural formation, the synthesis of novel biological matter is a fairly recent development in the field. These papers are all engaged in developing working methods to crossbreed computational, biological, genetic, and electrochemical logics for new species of architectural and landscape materialization. These explorations look toward a future of architecture that goes beyond life-like behavior and intelligent interaction and actually incorporates living matter into the production of designed environments. With such work, the discourses of bioethics and biopolitics that have been central to posthumanist theory in relation to biomedicine will increasingly become relevant to architecture.

Material Frontiers

414 Faysal Tabbarah
Almost Natural Shelter: Non-Linear Material Misbehavior

424 Simon Twose, Rosa du Chatenier
Experimental Material Research — Digital Chocolate

432 Michael Leighton Beaman
Landscapes After The Bifurcation of Nature

440 Brandon Clifford
the McKnelly Megalith

450 Alberto T. Estévez
Towards Genetic Posthuman Frontiers in Architecture & Design

460 Martyn Dade-Robertson, Javier Rodriguez Corral, Helen Mitrani, Meng Zhang, Anil Wipat, Carolina Ramirez-Figueroa, Luis Hernan
Thinking Soils

470 Aldo Sollazzo, Eflena Baseta, Angelos Chronis
Symbiotic Associations

478 Luke Franzke, Dino Rossi, Karmen Franinović
Fluid Morphologies

488 Tiziano Derme, Daniela Mitterberger, Umberto Di Tanna
Growth Based Fabrication Techniques for Bacterial Cellulose