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This is the proceedings of the 4th International Conference on Strain-Hardening Cement-Based Composites (SHCC4), that was held at the Technische Universität Dresden, Germany from 18 to 20 September 2017. The conference focused on advanced fiber-reinforced concrete materials such as strain-hardening cement-based composites (SHCC), textile-reinforced concrete (TRC) and high-performance fiberreinforced cement-based composites (HPFRCC). All these new materials exhibit pseudo-ductile behavior resulting from the formation of multiple, fine cracks when subject to tensile loading. The use of such types of fiber-reinforced concrete could revolutionize the planning, development, dimensioning, structural and architectural design, construction of new and strengthening and repair of existing buildings and structures in many areas of application. The SHCC4 Conference was the follow-up of three previous successful international events in Stellenbosch, South Africa in 2009, Rio de Janeiro, Brazil in 2011, and Dordrecht, The Netherlands in 2014.