This book describes the design, detailing and structural engineering of filigree, double-curved and long-span glazed shells of minimal weight and ingenious details. Innovative, clear and understandable geometric principles for the design of double-curved shell structures are explained in a practical manner. The principles are simple to apply with the use of functions now available in most CAD programs. The author demonstrates how floating and homogeneous structures can be created on these „free" forms, particularly grid shells of planar rectangles. These are especially suitable for glazing with flat panes and offer structural, economical and architectural advantages. Examples are provided to illustrate in simple ways the latest methods of form finding calculation and holistic optimisation through the complex interaction of structure, form and topology. Numerous examples built all over the world in close partnership with renowned architects from 1989 to 2014 offer orientation and assistance in the design of such double-curved shells. Essential design parameters, many details and node connections of constructed projects are presented and evaluated.

This book draws on the author's contemplations and experiences, and includes his descriptions of recent developments in the field of transparent shell structures. He gathered these during his time with the engineering firm schlaich bergermann und partner.

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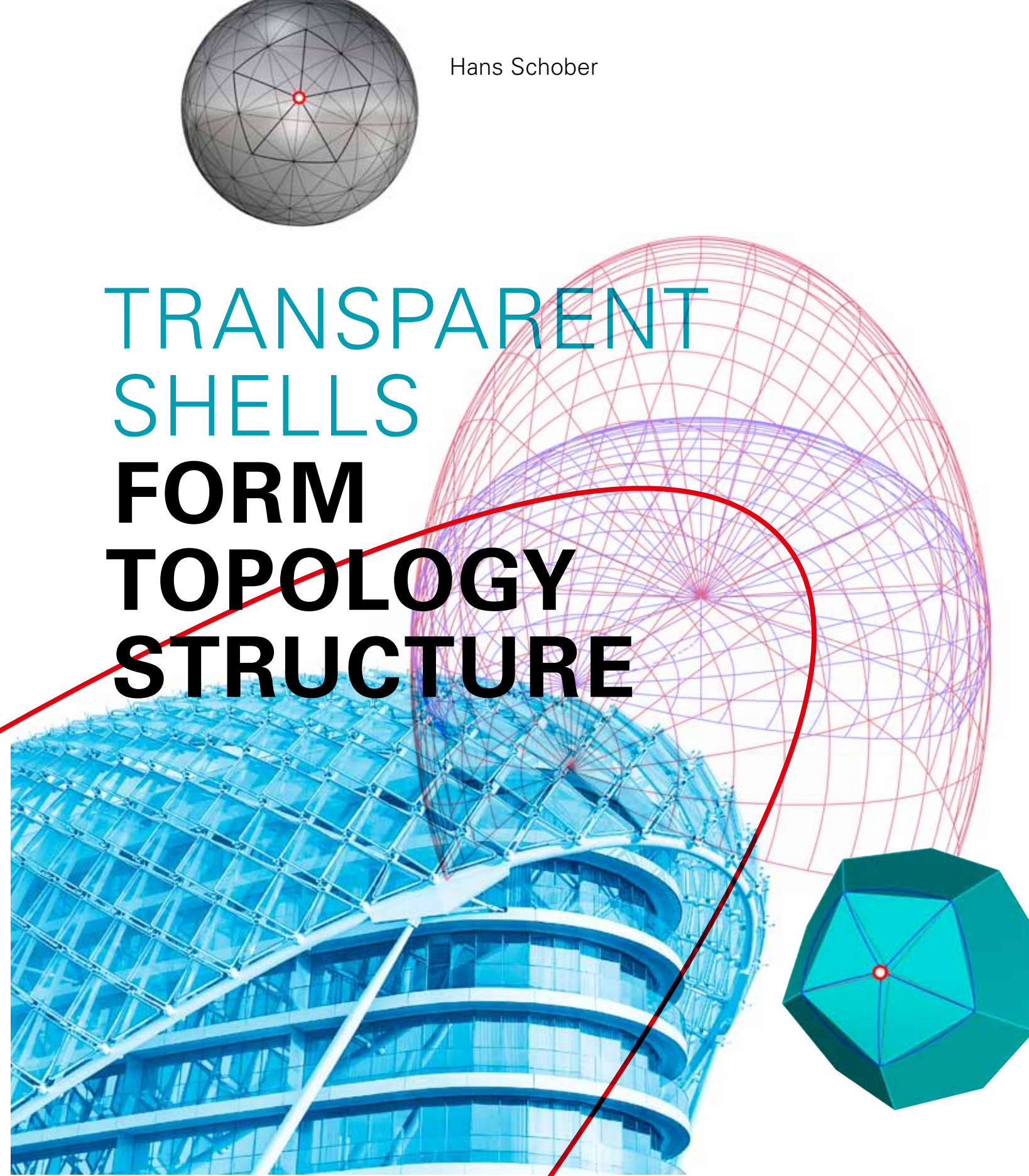
Hans Schober

TRANSPARENT SHELLS

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