

**PROGRAM**

# **SYMMETRY FESTIVAL 2013**

UNESCO-IHE, TU DELFT, VAK DELFT

Delft, The Netherlands,

2 August – 7 August 2013

**FRIDAY, 2 August**


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<b>08.15 – 09.00</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> <i>Julianalaan 134</i>	<b>REGISTRATION</b>
<b>09.00 – 9.15</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> <i>Auditory</i> <i>Oost-Serre</i> <i>Julianalaan 134</i>	<b>OPENING CEREMONY</b> A. Szöllősi-Nagy, rector, UNESCO-IHE G. Darvas, CEO, ISA
<b>“THE DAY OF PHYSICS”</b>	
<b>9.15 – 10.15</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> <i>Julianalaan 134</i>	Chair: Gould, L. I., <b>KEYNOTE LECTURE</b> <b>Symmetries in Elementary Particle Physics</b> <i>G. 't Hooft</i> (Utrecht University, Nobel Laureate 1999)
<i>Refreshment Break</i>	
<b>10.35 -11.25</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> <i>Julianalaan 134</i>	<b>PLENARY LECTURE</b> <b>Hunting the Higgs-boson: Is It Found at LHC?</b> <i>D. Horváth</i> (Wigner Research Centre, Budapest)
<b>11.25-12.15</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> <i>Julianalaan 134</i>	<b>PLENARY LECTURE</b> <b>A Symmetric Adventure Beyond the Standard Model -</b> <b>Isotopic Field-Charge Spin Conservation in the Electromagnetic</b> <b>Interaction</b> <i>G. Darvas</i> (Symmetrion)
<i>Lunch<sup>1</sup> Break</i>	

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<sup>1</sup> Lunch is available at the Cafeteria of the UNESCO IHE all weekdays.  
Cost is approx. €3,50 for a cold and €5,50 for a hot meal.

<b>14.00-17.30</b> <b>UNESCO-IHE</b> Westvest 7	<b>PARALLEL SESSIONS</b>
<b>14.00-15.30</b>	
<i>Room B1</i>	<b>Issues Pertaining to Symmetry in Physics (1)</b> Chair: Gould, L. I. Mainzer, K.: <i>Symmetry and complexity</i> Muller, F.A.: <i>Permutation symmetry of elementary particles in quantum mechanics: Recent developments</i> Gould, L. I.: — <i>Noether's invisible hand — A way of directly relating both local and nonlocal dynamical laws to their associated conservation laws</i>
<i>Room B2</i>	<b>Tessellation</b> Chair: Gailiunas, P. Dunham, D.: <i>Symmetric fish patterns on regular periodic polyhedra</i> Yoshino, T. : <i>Symmetrical properties of the geometrical model for spherical Radiolarian skeleton</i>
<i>Room B3</i>	<b>Symmetries in the Fine Arts</b> Chair: Hodne, L. Hodne, L.: <i>The holy face. Psychological and art historical approaches to the study of symmetry in Renaissance portraits</i> Bando, T., Sasaki, Y. , Matsumoto, K.: <i>The effects of dot arrangement and dot shape to the degree of vividness of color in pointillism paintings</i> Huylebrouck, D., Bartlett, Ch.: <i>Art and math of the 1.35 ratio rectangle</i> Saxon-Szász, J.: <i>Footless chair – Saxon's poly-universe</i>
<b>15.30 – 16.00</b>	<i>Refreshment Break</i>

<b>16.00-17.30</b>	
<i>Room B1</i>	<b>Issues Pertaining to Symmetry in Physics (2)</b> Chair: Gould, L. I. Caglioti, G.: <i>Symmetry and symmetry reduction – An obstacle and a support to the measure of the time</i> Rowlands, P.: <i>Symmetry in physics from the foundations</i> Urusov, V.S.: <i>Symmetry-dissymmetry in the evolution of the world: From the Big bang to progress of the Earth's life</i>
<i>Room B2</i>	<b>Tiling</b> Chair: Gailiunas, P. Gailiunas, P.: <i>Versatiles</i> Chavey, D.: <i>Tilings by regular polygons III: Dodecagon-dense tilings</i> Espigulé Pons, B.: <i>Symmetries in harmonic fractal trees</i>

<b>19.00-</b>	<b>EXHIBITION OPENING</b>
<i>Gallery</i> <b>VAK</b> Westvest 9	<b>Suprematism100 – Its Influence on the West</b> (Curator: Zs. Dárda) Open: <i>L. Beke</i> (art historian) and the vice-mayor of Delft Welcome party

**SATURDAY, 03 AUGUST**


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UNESCO-IHE Westvest 7	"WATER DAY"
09.00 – 10.00 <i>Room B1</i>	Chair: Wismuller, T.H. <b>KEYNOTE LECTURE</b> <b>The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor</b> <i>G. H. Pollack (University of Washington, Seattle)</i>
10.00 – 10.50 <i>Room B1</i>	<b>PLENARY LECTURE</b> <b>Global Asymmetry of Space and Time</b> <i>M. Shinitzky (The Weizmann Institute, Rehovot)</i>
10.50 – 11.20	<i>Refreshment Break</i>
11.20 – 11.45 <i>Room B1</i>	Chair: Fenyvesi, K. <b>Hands-on Symmetry Using Zometool</b> <i>P. Hildebrandt (Zometool Inc.)</i>
11.45 – 12.30 <i>Room B1</i>	<b>PANEL DISCUSSION</b> <b>On Interdisciplinary Symmetry Studies in the 2010s</b> Moderator: Gould, L. I. Panel members: Caglioti, G., Kappraff, J., Shinitzky, M.
12.30 – 14.00	<i>Lunch Break</i>

14.00-17.30 <b>UNESCO-IHE</b> Westvest 7	<b>PARALLEL SESSIONS</b>
14.00-15.30	
<i>Room B1</i>	<b>Polyhedral Symmetries (1)</b> Chair: Molnár, E. Molnár, E., Prok, I.: <i>Four-dimensional regular polytopes move in the computer screen with illumination effects</i> Pedersen, J.: <i>Braided models that let you see the answer to a combinatorial question</i> <i>Donmoyer (workshop)</i>
<i>Room B2</i>	<b>Symmetries of the Genetic Code (1)</b> Chair: Petoukhov, S.V. and He, M. Karasev, V.A., Stefanov, V.E.: <i>10-digits Boolean system in description of protein pentafragments</i> Négadi, T.: <i>The genetic code invariance: When Euler and Fibonacci meet</i> He, M.: <i>Amino acids, emotions, and symmetrical genetic matrices</i>
<i>Room B3</i>	<b>Chirality and Symmetry in the Chemical and Physical Structure of Matter (1)</b> Chair: Borovkov, V. and Petitjean, M. Inoue, Y.: <i>Photochirogenesis: Symmetry breaking in photochemistry</i> Kuroda, R.: <i>Chirality as a crossroad of chemistry, physics and biology</i> Kleij, A.W., Escarcega-Bobadilla, M., Salassa, G.: <i>Supramolecular chirality at the molecular level and beyond</i>
15.30 – 16.00	<i>Refreshment Break</i>

16.00 – 17.30	
<i>Room B1</i>	<p><b>Asymmetries of Climate Change and Water Resources (Causes and Consequences)</b>  Co-Chaired and introduced by L. I. Gould (with a concluding commentary on <i>Searching for Symmetries in Climate Change</i>) and T. Wismuller  Svensmark, H.: <i>Symmetry of the Milky way and its consequences for life on Earth</i>  Wismuller, T.H.: <i>The opening arctic's effect on climate. How symmetries and asymmetries of cloud, snow, and ice albedo play a crucial role. How hexagonal crystal symmetry and snowflake uniqueness can co-exist</i></p>
<i>Room B2</i>	<p><b>Symmetries of the Genetic Code (2)</b>  Chair: Petoukhov, S.V. and He, M.  Petoukhov, S.V.: <i>Matrix genetics, algebras of the genetic code and preface to a grammar of biology</i>  Stambuk, N.: <i>Complementarity and symmetry of the genetic code patterns related to the biological recognition</i>  Cristea<sup>†</sup>, P.D.: <i>Structural and evolutionary symmetries of genomes</i></p>
<i>Room B3</i>	<p><b>Chirality and Symmetry in the Chemical and Physical Structure of Matter (2)</b>  Chair: Borovkov, V. and Petitjean, M.  Mori, T.: <i>Combined experimental and theoretical investigation of chiroptical properties of helicenes and related molecules</i>  Komatsu, N.: <i>Separation of left- and right-handed carbon nanotubes</i>  Yashima, E.: <i>Helical polymers and oligomers: From single helix to double helix</i></p>

<b>17.45 – 19.15</b> <b>UNESCO-IHE</b> Westvest 7	<b>EXHIBITION OPENINGS</b>
<i>Corridors, and Exhibition room in the IHE</i>	<b>EXHIBITION OPENINGS:</b> <ul style="list-style-type: none"> <li>- <b>Sealife/Tales From The Land</b></li> <li>- <b>Artistic models for science</b></li> </ul> <b>Zometool Workshop P. Hildebrandt</b>

## SUNDAY, 04 AUGUST

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<b>MORNING</b>	<b>“EXCURSION DAY”</b>
10.00-14.00	<b>Museum visits in The Hague</b> Alternative programs, according to your choice: <ul style="list-style-type: none"> <li>- <i>Escher Museum</i> (and V. Koleychuk’s artwork in front of it)</li> <li>- <i>Gemeentemuseum</i> (incl. an extensive Mondrian collection)</li> </ul>

<b>AFTERNOON</b> - <b>EVENING</b> 16.00 - Community programs,  <b>Markt</b>  <i>(Main market          place of Delft)</i>	<b>“FAMILY DAY”</b> Organiser and host: K. Fenyvesi <i>Workshops:</i> <ul style="list-style-type: none"> <li>- Make your own <b>Buckminsterfullerene model</b> together with <i>Sir H. Kroto</i> and others</li> <li>- Take part in building an eleven level, 3m high <b>DNA sequence ZomeTool model</b> under the guidance of <i>P. Hildebrandt</i> and <i>L. Vörös!</i></li> <li>- Other <b>creative workshops</b> (<i>B. di Carlo, S. Donmoyer and J. Pedersen, V. Genel, B-Y. Jin et al., M. Lisar, R. Quehenberger, J. Saxon-Szász and Zs. Dárdai, S. Verbiese, S. Wilmoth</i>)</li> </ul> <i>Dance:</i> <ul style="list-style-type: none"> <li>- Culturally situated mathematics in action: Symmetry and asymmetry in folk <b>dance</b> with <i>J. van der Veen</i></li> </ul> <i>Music</i> <ul style="list-style-type: none"> <li>- Listen to Brazilian and Italian <b>songs</b> performed on guitar by <i>B. di Carlo</i>  <i>... other surprises ...</i></li> </ul>
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**MONDAY, 05 AUGUST**


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<b>“MICROSTRUCTURE OF MATTER DAY”</b>	
<b>9.00 – 10.00</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> Julianalaan 134	Chair: Darvas, G. <b>KEYNOTE LECTURE</b> <b>Symmetry and Broken Symmetry...There Ain't Nuthin Else!</b> <i>H. Kroto</i> (Florida State University and University of Sussex, Nobel Laureate 1996)
10.00 – 10.20	<i>Refreshment Break</i>
<b>10.20 -11.10</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> Julianalaan 134	<b>PLENARY LECTURE</b> <b>Crystallising Wagner – Symmetry and Symmetry Breaking in the</b> <b><i>Tristan Prelude</i></b> <i>Banney, David</i> (University of Newcastle, Australia)
<b>11.10-12.10</b> <b>TU Delft</b> <b>Faculty of</b> <b>Architecture</b> Julianalaan 134	<b>PLENARY MEETING</b> <b><i>In Memoriam Arthur L. Loeb</i></b> <b>Commemorations by colleagues</b> Lecture by W. Hornfeck (Institut für Materialphysik im Weltraum, Köln): <b>A permutation approach to crystal structures</b>
12.10 – 14.00	<i>Lunch Break</i>

14.00-17.30 <b>UNESCO-IHE</b> Westvest 7	<b>PARALLEL SESSIONS</b>
14.00-15.30	
<i>Room B1</i>	<b>Symmetries in Music (1)</b> Chair: Zenkin, K. <i>Zenkin, K.: The perceptual kinds of space in music and the role of symmetry in their structuring</i> <i>Pereverzeva, M.: Symmetry of material and form in twentieth century music</i> <i>Alekseeva, G.: Basis of orthodox chants symmetry</i>
<i>Room B2</i>	<b>Golden Section in the Microstructure of Matter</b> Chair: Hornfeck, W. <i>Aboufadiel, Y., A. Thalal, M. A., Raghni, E.: Quasi-periodic tiling in Moroccan ornamental art</i> <i>Olsen, S.A.: The golden section's pivotal role in modern science</i> <i>Koca, M., Koca, N.: Coxeter groups and quasicrystals</i> <i>Koca, N., Koca, M.: Coxeter-Weyl groups, quaternions, symmetries of polyhedra</i>
<i>Room B3</i>	<b>Chirality and Symmetry in the Chemical and Physical Structure of Matter (3)</b> Chair: Borovkov, V. and Petitjean, M. <i>Kano, K.: Chiral twisted-structures of cyclodextrins</i> <i>Borovkov, V.: Supramolecular chirality sensing and enantioselective catalysis</i> <i>Monti, D., Lorecchio, C., Venanzi, M., Palleschi, A., Mazzuca, C., Basoli, F., Lettieri, R., Paolesse, R., Drasar, D.: Kinetic and morphological studies of the solvent-promoted chiral self aggregation of steroid-porphyrin derivatives</i>
15.30 – 16.00	<i>Refreshment Break</i>

16.00 – 17.30	
<i>Room B1</i>	<p><b>Symmetries in Music (2)</b>  Chair: Zenkin, K.  Karaseva, M.: <i>Symmetrical modes in the 20th century music: Psychological influence and its application to ear training</i>  Tchouvilleva, T., Caglioti, G., Marcon, M.: <i>PiezoMusiColor - a natural form of technologic art</i>  Veksler Y.: <i>Symmetry in Alban Berg's music</i></p>
<i>Room B2</i>	<p><b>Perception: Logical and Psychological aspects</b>  Chair: Rowlands, P.  Oyo, K., Namiki, N., and Takahashi, T.: <i>Symmetric cognition and its functionality under uncertainty</i>  Sawa, K., Yokokawa, J., Takahashi, T.: <i>Logical identification: Symmetric and asymmetric features</i></p>
<i>Room B3</i>	<p><b>Chirality and Symmetry in the Chemical and Physical Structure of Matter (4)</b>  Chair: Borovkov, V. and Petitjean, M.  Hill, J., Labuta, J., Ishihara, Sh., Shundo, A. and Ariga, K: <i>Non-chiral Tetrapyrroles for NMR determination of enantiomeric excess</i>  Wada, T., Murakami, M., Araki, Y., Sakamoto, S.: <i>Development of high sensitive and time-resolve circular dichroism detection method</i>  Solladie, N.: <i>Nucleotidic and peptidic multi-porphyrinic devices: When the desired conformation is determined by chiral flexible linker</i></p>

<p><b>18.00 – 19.45</b>  <b>UNESCO-IHE</b>  Westvest 7</p>	<p><b>PERFORMANCES</b></p>
<i>Dining Room</i>	<ul style="list-style-type: none"> <li>- <b>Mondrian Variations</b>  Multimedia Performance by S. Vály (Helsinki) and É. Polgár (Denton, TX) with projection and live music (60 min)</li> <li>- <b>Poetry performance</b>  (Bubnov, Aristov, Chakraborty, Bonch-Osmolovskaya) (25 min)</li> <li>- <b>Piano performances (...)</b></li> </ul>



**TUESDAY, 06 AUGUST**

<b>“NATURAL AND BUILT STRUCTURES DAY”</b>	
<b>9.00 – 10.00</b> <b>TU Delft</b> <b>Faculty of Architecture</b> Julianalaan 134	Chair: Vörös, L. <b>PLENARY LECTURE</b> <b>The Roundness of Polyhedra</b> <i>P. Huybers</i> (Delft University of Technology, Structural Morphology Group)
10.00 – 10.20	<i>Refreshment Break</i>
<b>10.20 -11.10</b> <b>TU Delft</b> <b>Faculty of Architecture</b> Julianalaan 134	<b>PLENARY LECTURE</b> <b>Graphic Representations of Multidimensional Quadratic Hypersurfaces</b> <i>K. Miyazaki</i> (Kyoto University)
<b>11.10-11.40</b> <b>TU Delft</b> <b>Faculty of Architecture</b> Julianalaan 134	<b>PLENARY LECTURE</b> <b>Symmetries in the Schools, in the Exhibition Halls and Out in the Open-air: the Experience Workshop Math-Art Movement in Symmetry Education</b> <i>K. Fenyvesi</i> (University of Jyväskylä)
<b>11.40-12.20</b> <b>TU Delft</b> <b>Faculty of Architecture</b> Julianalaan 134	<b>GENERAL ASSEMBLY OF THE <i>INTERNATIONAL SYMMETRY ASSOCIATION (ISA)</i></b> (with the participation of all registered attendees of the Symmetry Festival) <b>On the Past and Future of ISA</b>
12.20 – 14.00	<i>Lunch Break</i>

14.00-17.30 <b>UNESCO-IHE</b> Westvest 7	<b>PARALLEL SESSIONS</b>
14.00-15.30	
<i>Room B1</i>	<b>Structural Morphology</b> Chair: Kozlov, D. <i>Kozlov, D.: Symmetry of knots and links as form-finding structures</i> <i>Luotoniemi, T.: Towards a three-dimensional knot ornamentation</i> <i>Di Carlo, B.: Design science structures</i>
<i>Room B2</i>	<b>Symmetries in Music (3)</b> Chair: Zenkin, K. <i>Kappraff, J.: Ancient harmonic law as a generator of cultural metaphors</i> <i>Stepanian, I.V., Darvas, G., Koblyakov, A.A. Petoukhov, S.V.: Symmetries in molecular-genetic systems and musical harmony</i> <i>Svirin, V.I., Stepanian, I.V.: Neural cybernetics and musical art</i>
<i>Room B3</i>	<b>Chirality and Symmetry in the Chemical and Physical Structure of Matter (5)</b> Chair: Borovkov, V. and Petitjean, M. <i>Setsune, J-I.: Helical molecular structure based on the pyrrole oligomers</i> <i>Miyake, H.: Chirality induction and its dynamic control in coordination chemistry</i> <i>Simonneaux, G., Srouf, H., Le Maux, P., and Chevance, S.: Chiral recognition and asymmetric catalysis with metal porphyrins</i>
15.30 – 16.00	<i>Refreshment Break</i>

16.00 – 17.30	
Room B1	<b>Architecture and Design</b> Chair: Emmer, M. Benvenuti, Silvia: <i>The numbers of beauty: Can maths foster creativity?</i> Emmer, M.: <i>Symmetry of the floor of the basilica of San Marco in Venice</i> Kelle, A.: YNI surface and aspects: My unusual geometric art shapes Press, D.: <i>String sculpture light show</i>
Room B2	<b>Workshops (parallel, around tables)</b> <i>P. Huybers,</i> <i>V. Genel</i> Jin, B-Y., Chuang, Ch., and Tsou, Ch-Ch.: <i>Visualizing molecular symmetry in chemistry through mathematical beading</i> <i>Di Carlo</i> <i>J. Constant</i>
Room B3	<b>Chirality and Symmetry in the Chemical and Physical Structure of Matter (6)</b> Chair: Borovkov, V. and Petitjean, M. Senge, M. O.: <i>Symmetry in photosynthesis: The engine of life and porphyrins</i> McMillin, D.R., Bork, M.A.: <i>Induced chirality in dna-bound porphyrins</i> Tsuda, A.: <i>Spectroscopic visualization of helical alignment of nanofiber in solution</i>
<b>18.00 – 19.30</b> <b>UNESCO-IHE</b> Westvest 7	<b>MOVIES</b>
Room B1	Chair: Bonch-Osmolovskaya, T. Yevin, I.A.: <b>(lecture)</b> <i>Phase transitions in plot development of movies and literary works</i> <i>Movie projections by A. Kelle, D. Press, ...</i>

**WEDNESDAY, 07 AUGUST**


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<b>9.00 – 9.50</b> <b>UNESCO-IHE</b> Westvest 7	Chair: Dunham, D. <b>PLENARY LECTURE</b> <b>Symmetrical immersions of low-genus non-orientable regular maps</b> <i>C. Sequin (U. C. Berkeley, CA)</i>
9.50 – 10.10	<i>Refreshment Break</i>

10.10-11.40 <b>UNESCO-IHE</b> Westvest 7	<b>PARALLEL SESSIONS</b>
10.10-11.40	
<i>Room B1</i>	<b>Symmetries in Education</b> Chair: van der Veen, J. <i>van der Veen, J.: Symmetry as a thematic approach to physics education</i> <i>Bertozzi, E. , Levrini, O.: Symmetry as conceptual core of the Standard model of Physics: Actions for scientific education</i> <i>Sugimoto, T.: Discourse on the latus rectum in conics</i> <i>Hiigli, J.: Symmetry in early childhood education</i>
<i>Room B2</i>	<b>Symmetries in Literature (1)</b> Chair: Bonch-Osmolovskaya, T. <i>T. Bonch-Osmolovskaya: Dissymmetrical transformations in Avaliani's poems: In the search for language wonders</i> <i>Spector, D.: Missed symmetry: Godot and the multiverse</i>
<i>Room B3</i>	<b>Chirality and Symmetry in the Chemical and Physical Structure of Matter (7)</b> Chair: Borovkov, V. and Petitjean, M. <i>Kinbara, K.: Amplification of molecular motions in supramolecular machines</i> <i>Hirose, K., Yachi, Y., Miura, Sh., Senda, Y. and Tobe, Y.: Synergetic approaches to amplifications of both enantioselectivity and sensitivity of chiral sensors based on pseudo-18-crown-6 ethers</i> <i>Fujiki, M.: Solvent chirality meets the pi-sigma-conjugated polymers: Programming and reprogramming</i>
11.40 – 13.00	<i>Lunch Break</i>

13.00 – 14.30 <b>UNESCO-IHE</b> Westvest 7	<b>PARALLEL SESSIONS</b>
<i>Room B1</i>	<b>Polyhedral Symmetries (2)</b> Chair: Sequin, C. Quehenberger, R.: <i>A newly found golden heptahedron named epitahedron</i> Reimann, D.: <i>Symmetric interlace patterns on polyhedra using generalized truchet tiles</i>
<i>Room B2</i>	<b>Symmetries in Literature (2)</b> Chair: Bonch-Osmolovskaya, T. Aristov, V.V.: <i>Idem-forma and search for a new type of symmetries in literature (“Identical invariants” in comparing literary products)</i> Chakraborty, M., Sirker, S.: <i>Nest of the mystery-bird</i> Bubnov, A.V.: <i>The palindromic axis: Velimir Khlebnikov, Petr Miturich and others</i>
<i>Room B3</i>	<b>Symmetry Aspects in Physics-Technology- Material Science</b> Chair: Constant, J. Voinova, M.V.: <i>Symmetry of the salt crystals formed at highly non-equilibrium conditions</i> Constant, J.: <i>Symmetry in mathematics, physics and art</i> Harth, P., Fülep, T., Michelberger, P.: <i>Symmetry in vehicles</i>
15.30- <i>Gallery,</i> <b>VAK,</b> <i>Westvest 9</i>	<b>EXHIBITION FINISSAGE</b> <b>Suprematism100 – Its Influence on the West</b> <i>Zs. Dárdai</i>
	<b>Farewell to Delft</b>
19.00-	<b>Festival Dinner</b> (Optional, not included)

**Event addresses:**

Registration, opening, and morning sessions (on Friday, Monday and Tuesday):  
*TU Delft, Faculty of Architecture, Julianalaan 134*

Festival conference programs in the afternoons and all day on Saturday and Wednesday:  
*UNESCO-IHE, Westvest 7*

Exhibition “Suprematism100 – Its Influence on the West”:  
*VAK, Westvest 9*

“Family Day” – Community programs on Sunday afternoon and evening:  
*Market place of Delft*