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## Employment

### Assistant Professor

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### Assistant Professor

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1 Sep 2004 → 22 Jan 2021

### Assistant Professor

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## Research outputs

### Success factors in the realization of large ice projects in education

Pronk, A. D. C., Luo, P., Li, Q., Sanders, F. C., Overtoom, M., Coar, L., Fakhrzare, M. & Ashrafi, A., 20 Dec 2020, (Accepted/In press) In: International Journal of Space Structures. XX, XX, 10 p.

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### Material tests and execution methods of linear composite pykrete structural elements

Pronk, A. D. C., de Boer, M. B. G., van de Hoef, J. M., Otterspoor, P. M. L. M., Pieloor, L. M. J. & Vens, O. D., 15 Aug 2020. 9 p.

### Structural design and validation of a pykrete tower through form finding

Pronk, A. D. C., de Boer, M. B. G., van de Hoef, J. M., Otterspoor, P. M. L. M., Pieloor, L. M. J. & Vens, O. D., 15 Aug 2020. 6 p.

### The property of fiber reinforced ice under uniaxial compression

Wu, Y., Lou, X., Liu, X. & Pronk, A., 1 Apr 2020, In: Materials and Structures/Materiaux et Constructions. 53, 2, 15 p., 29.

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Pronk, A. D. C. & Luo, P., 15 Dec 2019, In: Architectural Practice. 2019, 11, p. 154-156 3 p.

### **3D printed grid shell in ice composite**

Pronk, A. D. C., Bouw, I., Ezendam, T., van Hierden, N., Vleeshouwers, J. & van der Weijden, D., 6 Oct 2019, *Proceedings of the IASS Annual Symposium 2019 – Structural Membranes 2019 Form and Force*. Lázaro, C., Bletzinger, K-U. & Oñate, E. (eds.). International Association for Shell and Spatial Structures (IASS) , 8 p.

### **Structural behavior of ice composite for 3D printing**

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### **Design, construction and monitoring of an ice composite shell structure**

Wu, Y., Liu, X., Chen, B., Li, Q., Luo, P. & Pronk, A., 1 Oct 2019, In: *Automation in Construction*. 106, 13 p., 102862.

### **Editorial special issue: advanced manufacturing and materials for inovative structural design**

Orr, J., Pronk, A. & Ibell, T., 1 Apr 2019, In: *Structures*. 18, 1 p.

### **The 2017–18 design and construction of ice composite structures in Harbin**

Pronk, A., Mistur, M., Li, Q., Liu, X., Blok, R., Liu, R., Wu, Y., Luo, P. & Dong, Y., 1 Apr 2019, In: *Structures*. 18, p. 117-127 11 p.

### **Fluid architecture and flexible moulding**

Pronk, A. D. C., 27 Feb 2019, Eindhoven: Technische Universiteit Eindhoven. 600 p.

### **Terra-ink additive earth manufacturing for emergency architecture**

Venturi, T., Turrin, M., Setaki, F., Veer, F., Pronk, A., Teuffel, P., Moonen, Y., Slangen, S. & Vorstermans, R., 1 Jan 2019, In: *Spool*. 6, 2, p. 41-46 6 p.

### **Design and construct of the 30.5 meter Flamenco Ice Tower**

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Sarakinioti, V., Turrin, M., Teeling, M., De Ruiter, P., Van Erk, M., Tenpierik, M., Konstantinou, T., Knaack, U., Pronk, A. D. C., Teuffel, P. M., van Lier, A. J., Vorstermans, R. L. G., Dolkemade, E., de Klijn, M. L., Loonen, R. C. G. M., Hensen, J. L. M. & Vlasblom, D., Dec 2017, In: *Spool*. 4, 2, p. 57-60

### **The warm igloo**

Pronk, A. D. C., Mergny, E., Luo, P. & Wu, Y., 9 Oct 2017, *Structural membranes 2017, Munich, Germany 9-11 October 2017*. Onate, E., Bletzinger, K-U. & Kroplin, B. (eds.). p. 1-6

### **3D printing of ice**

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### **Architectural Design learning by construction: review of Sino-Euro join studio of ice architecture construction**

Luo, P., Yuan, L., Wang, K., Wu, Y. & Pronk, A. D. C., 25 Sep 2017, *2017 IASS Symposium, 25-28 September 2017, Hamburg, Germany*.

### **Form-finding and construction of ice composite shell structures**

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Li, Q., Chen, B., Liu, X., Luo, P., Pronk, A. D. C. & Mergny, E., 25 Sep 2017, *2017 IASS Symposium, 25-28 September 2017, Hamburg, Germany*.

### **Success factors in the realization of large ice projects in education**

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### **IASS working group Advanced manufacturing**

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### **Expo of Ice Sculptures at Exposition in Harbin China**

Pronk, A. D. C., Moonen, Y., Ide, G., de Jonghe, L. & Gort, D., 24 Dec 2016

### **Expo Flexible Formwork**

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### **Flexible formwork technologies: a state of the art review**

Hawkins, W., Herrmann, M., Ibell, T., Kromoser, B., Michaelski, A., Orr, J., Pedreschi, R., Pronk, A. D. C., Schipper, R., Shepherd, P., Veenendaal, D., Wansdronk, R. & West, M., 15 Dec 2016, In: *Structural Concrete*. 17, 6, p. 911–935 25 p.

### **NBD Bouwdetails RC5**

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### **Concrete Shell at Dutch Design Week 2016**

Pronk, A. D. C., 15 Oct 2016

### **Da Vinci's Bridge in ice and other ice structures with an Inflatable mould**

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### **Structural experiments with ice (composite) shells**

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### **Design of Da Vinci's bridge in ice**

Pronk, A. D. C., Blok, R., van Brunschot, M. C. A. J., van Lier, A. J., van de Mortel, F. F. H., Williams, K. K., Arntz, M. G. A. J., Hermens, L. J., Koekkoek, R. & van de Nieuwenhof, T. A. H., 15 Aug 2016, *Structures and Architecture: beyond their limits : proceedings of the third International Conference on Structures and Architecture (ICSA2016), Guimarães, Portugal, 27-29 July 2016*. Cruz, P. J. S. (ed.). London: CRC Press/Balkema, p. 363–375 13 p.

### **Historical development of structural ice**

Pronk, A. D. C., Vasiliev, N. & Belis, J. L. I. F., 15 Aug 2016, *Structures and Architecture : beyond their limits : proceedings of the third International Conference on Structures and Architecture (ICSA2016), Guimarães, Portugal, 27-29 July 2016*. Cruz, P. J. S. (ed.). London: CRC Press Taylor & Francis Group, p. 339-347 9 p.

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**Ice Paradise in Juuka Finland**

Pronk, A. D. C., 13 Feb 2016

**Organisation of a Symposium on Ice Structures in Juuka Finland**

Pronk, A. D. C., 12 Feb 2016

**IASS 2015 Expo**

Pronk, A. D. C., 20 Aug 2015

**Flexible mould by the use of spring steel mesh**

Pronk, A., El Ghazi, H., Seffinga, A. & Schuijers, N. H., 17 Aug 2015, p. 1-9.

**Sun-Spotter : gravity point displacement as solar-tracking principle**

Pronk, A., Dizdar, D. & Schuurmans, W. A., 17 Aug 2015.

**The calculation and construction of the highest ice dome : the Sagrada Familia in Ice:**

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**The VaCo Mould, a research about a new moulding principle for double curved concrete panels**

Pronk, A., Lusing, T. & Versteeg, R. H. P. G., 16 Aug 2015, p. 1-9. 6 p.

**A review on the development of reinforced ice for use as a building material in cold regions**

Vasiliev, N. K., Pronk, A. D. C., Shatalina, I. N., Janssen, F. H. M. E. & Houben, R. W. G., 1 Jul 2015, In: *Cold Regions Science and Technology*. 115, p. 56-63 8 p.

**Ice composites as construction materials in projects of ice structures**

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**Ice and ice-soil composites as construction materials in ice structures**

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**Spraying pykrete: The spraying of water and wood fibers to reinforce ice**

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**The calculation and construction of a 30 meter span ice dome**

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### **Transparent shell structure**

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### **Producing optimized structures with inflatables structural membranes 2013**

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### **technical textiles in architecture, construction and interiors**

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### **Detail in architectuur : concept, techniek, materiaal**

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### **84 ways to manipulate a membrane**

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### **8 plannen voor de herbestemming van een rioolgemaal**

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**Modeling and producing optimal open cell structures for architecture**

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### **The production of free formed concrete elements in a flexible mould**

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### **Heat-transmitting membrane : volume 1**

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### **"A new construction method for Philips pavilion"**

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Pronk, A. D. C. & Osinga, D. R., 2005, *Proceedings conference on Structural Membranes, Stuttgart, 2-4 Oct.* p. 8-

### **An Art Pavillion Made by Rigidizing a Membrane Mould with Polyester**

Houtman, R., Pronk, A. D. C. & Moncrieff, E., 2004, *Textile Roofs, IASS Symposium Montpellier, Part I TP04: 6 pages on CDROM and in printed proceedings*. Sleigh, A. (ed.). p. 260-261

### **Blow your blob, Blob in the Faculty**

Pronk, A. D. C. & van Helvoirt, J., 2004, *Blob in the faculty 2004*. Eekhout, A. C. J. M. & Veldkamp, M. (eds.). Delft: DUP, p. 140-151

### **T1 - An Art Pavillion Made by Rigidizing a Membrane Mould with Polyester**

Houtman, R., Pronk, A. D. C. & Moncrieff, E., 2004, *Textile Roofs, IASS Symposium Montpellier, Part II PO19, 6 pages on CDROM and in printed proceedings*. Sleigh, A. (ed.). p. 428-429



### **A fluid pavillion by rigidizing a membrane.**

Pronk, A. D. C., Houtman, R., Hanselaar, H. & Borgart, A., 2003, *Proceedings of the CIMNE Congress Structural Membranes, Barcelona*. Oñate, E. & Kröplin, B. (eds.). p. 105-112

### **Blob architecture, art and expo pavillion at the Technical University Eindhoven**

Pronk, A. D. C. & Houtman, R., 2003, *Proceedings Textile Roofs 2003*. Grundig, L. (ed.). p. 1-6

### **Making geometrical complex structural elements – a lightweight stage covering for an open-air theatre.**

Werkman, H., Bogart, A., Pronk, A. D. C., Langeveld, E. & Houtman, R., 2003, *Proceedings, CIMNE Congress Structural Membranes, Barcelona*. Oñate, E. & Kröplin, B. (eds.). p. 244-249

### **Dubbel gekromde gevels of de maakbaarheid van blobs**

Pronk, A. D. C., 2002, In: *Stedebouw en Architectuur*. 19, 11, p. 22-23

## **Activities**

### **barcelona pavilion expo**

Arno D.C. Pronk (Organiser) & John Orr (Organiser)  
6 Oct 2019 → 11 Oct 2019

### **workshop advanced manufacturing**

Arno Pronk (Organiser) & John Orr (Organiser)  
16 Jul 2018

### **construction of innovative structural ice pavilions**

Arno Pronk (Participant) & Peng Luo (Organiser)  
13 Dec 2017 → 22 Dec 2017

### **workshop inflatable**

Arno Pronk (Organiser) & Peng Luo (Participant)  
23 Oct 2017 → 27 Oct 2017

### **IASS Workgroup 21 on Advanced Manufacturing & Materials (External organisation)**

Arno Pronk (Chair), John Orr (Chair) & Yiling Zhou (Member)  
25 Sep 2017 → 9 Sep 2022

### **summer school in ice structures**

Arno Pronk (Contributor) & Peng Luo (Organiser)  
28 Jun 2017 → 11 Jul 2017

### **International Association for Shell and Spatial Structures (External organisation)**

Arno D.C. Pronk (Member)  
6 Jun 2002 → 6 Jun 2030

### **structural membranes (External organisation)**

Arno D.C. Pronk (Chair)  
6 Jun 2002 → 6 Jun 2030

## **Recognition**

### **4TU Lighthouse project, Terra Ink**

Pronk, Arno D.C. (Recipient), Turrin, M. (Recipient) & Venturini, T. (Recipient), 5 Jan 2017

**First price Harbin international ice competition**

Pronk, Arno D.C. (Recipient), 21 Dec 2019

**Ontwerpwedstrijd duurzaam drijvend wonen, april 2010**

Pronk, Arno D.C. (Recipient), 2010

**WA Chinese Architecture Awards 2018**

Pronk, Arno D.C. (Recipient), 6 Jun 2018

**World Record Highest self-supporting ice shell**

Pronk, Arno D.C. (Recipient), 10 Jan 2018

**Press/Media**

**2019 Harbin Institute of Technology International Ice and Snow Innovative Design and Construction Competition**

Arno D.C. Pronk

8/01/20

1 item of Media coverage

**A PENTAGONAL 'EIFFEL TOWER' MADE OF ICE AND CELLULOSE**

Arno D.C. Pronk

8/01/20

1 Media contribution

**Architecture students' winter spectacle to showcase Leonardo da Vinci's Bridge Out of Ice**

Arno D.C. Pronk

28/04/15

5 items of Media coverage

**Cambridge team unveils winning ice structure**

Arno D.C. Pronk

28/01/19

1 item of Media coverage

**Construction begins of ice bridge built to da Vinci design**

Arno D.C. Pronk

1/01/16

1 item of Media coverage

**Dutch students to build 50-meter-long bridge out of ice**

Arno D.C. Pronk

27/04/15

1 item of Media coverage

**Dutch Students Will Be Building A 50 Meters Long Bridge Out Of Ice**

Arno D.C. Pronk

5/05/15

1 item of Media coverage

**Eindhovense ijsbouwers gaan oefenen voor Olympische winterspelen**

Arno D.C. Pronk

25/09/19

1 Media contribution

**Eindhovense ijstoren in China 'de mooiste'**

Arno D.C. Pronk

27/12/19

1 Media contribution

**Engineering with ice: U of A students build beam with visiting Dutch expert**

Arno D.C. Pronk

19/02/20

1 item of Media coverage

**harbin ice tower**

Arno Pronk

25/01/18

1 Media contribution

**het maken van igloo's in Nederland**

Arno D.C. Pronk

8/02/21

1 Media contribution

**Ice bridge collapsed, Aalto logo remains**

Arno Pronk

9/02/16

1 item of Media coverage

**Meet the ice doctor who's reviving the frozen science behind Canada's secret weapon from WWII**

Arno D.C. Pronk

22/02/20

2 items of Media coverage

**Meet the ice doctor who's reviving the frozen science behind Canada's secret weapon from WWII**

Arno D.C. Pronk

22/02/20

4 items of Media coverage

**opgeleverd voorbeeldige zelfbouw projecten in Amsterdam**

Arno D.C. Pronk

1/11/17

1 Media contribution

**Reviving a frozen science; Dutch scientist teaches technique used to develop a secret weapon in the Second World War**

Arno D.C. Pronk

29/02/20

1 item of Media coverage

**Students heading for Finland to build largest ice bridge ever**

Arno D.C. Pronk

22/12/15

1 item of Media coverage

**WA Awards for Chinese Architecture 2018**

Arno D.C. Pronk, W. Chen & Wei Chen

22/02/19

1 item of Media coverage

## Projects

### **SCB: Smart Circular Bridge for pedestrians and cyclists in a circular built environment NWE993**

Blok, R., Teuffel, P. M., Moonen, S. P. G. (., Blok, R., Manconi, M., Shahmirzaloo, A., Habraken, A. P. H. W., Pronk, A. D. C., van den Hurk, B. & van Dorst, K.

26/09/19 → 31/12/23

## Courses

### **Advanced Design & Construct of an innovative structural object**

1/09/15 → ...

### **Entrance project structural engineering and design**

1/09/14 → ...

### **Master project construction plan**

1/09/14 → ...

### **Project 1 Building Physics & Structural Engineering and Design**

1/09/14 → ...

### **Resource efficient structural engineering and design**

1/09/18 → ...

### **Structural design with glass and other materials**

1/09/15 → ...