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Product Technology  
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## Employment

### Universitair hoofddocent

Associate Professor  
Product Technology  
University of Groningen  
Groningen, Netherlands  
15-Jun-2022 → present

### Postdoc

Delft University of Technology  
Delft, Netherlands  
1-Jan-2012 → 1-Jan-2017

## Research outputs

### Effect of intermolecular interactions on the glass transition temperature of chemically modified alternating polyketones

González Cortes, P., Araya-Hermosilla, R., Wrighton-Araneda, K., Cortés-Arriagada, D., Picchioni, F., Yan, F., Rudolf, P., Bose, R. K. & Quero, F., Dec-2023, In: *Materials Today Chemistry*. 34, 14 p., 101771.

### Electrically and thermally healable nanocomposites via one-step Diels-Alder reaction on carbon nanotubes

Guo, J., Picchioni, F. & Bose, R. K., 22-Sept-2023, In: *Polymer*. 283, 10 p., 126260.

### Oxidative chemical vapor deposition of polypyrrole onto carbon fabric for flexible supercapacitive electrode material

Dianatdar, A., Mukherjee, A. & Bose, R. K., 1-Sept-2023, In: *Synthetic Metals*. 298, 10 p., 117444.

### Electroactive Thermo-Pneumatic Soft Actuator with Self-Healing Features: A Critical Evaluation

Orozco Gutierrez, F., Horvat, D., Miola, M., Moreno-Villoslada, I., Picchioni, F. & Bose, R., 9-Aug-2023, In: *Soft Robotics*. 10, 4

### Electrically Conductive and Highly Stretchable Piezoresistive Polymer Nanocomposites via Oxidative Chemical Vapor Deposition

Mukherjee, A., Dianatdar, A., Gładysz, M. Z., Hemmatpour, H., Hendriksen, M., Rudolf, P., Włodarczyk-Biegun, M. K., Kamperman, M., Prakash Kottapalli, A. G. & Bose, R. K., 5-Jul-2023, In: *ACS Applied Materials and Interfaces*. 15, p. 31899–31916 18 p.

### Beyond Diels-Alder: Domino reactions in furan-maleimide click networks

van den Tempel, P., van der Boon, E. O., Winkelman, J. G. M., Krasnikova, A. V., Parisi, D., Deuss, P. J., Picchioni, F. & Bose, R. K., 2-May-2023, In: *Polymer*. 274, 10 p., 125884.

### Rheological and Self-Healing Behavior of Hydrogels Synthesized from L-Lysine-Functionalized Alginate Dialdehyde

Putri, A. P., Bose, R. K., Chalid, M. & Picchioni, F., Feb-2023, In: *Polymers*. 15, 4, 15 p., 1010.

**Oxidative chemical vapor deposition for synthesis and processing of conjugated polymers: A critical review**

Dianatdar, A. & Bose, R. K., 2023, In: Journal of Materials Chemistry C. 11, 35, p. 11776–11802 27 p.

**Electroactive performance and cost evaluation of carbon nanotubes and carbon black as conductive fillers in self-healing shape memory polymers and other composites**

Orozco, F., Salvatore, A., Sakulmankongsuk, A., Gomes, D. R., Pei, Y., Araya-Hermosilla, E., Pucci, A., Moreno-Villoslada, I., Picchioni, F. & Bose, R. K., 8-Nov-2022, In: Polymer. 260, 125365.

**Initiated Chemical Vapor Deposition (iCVD) of Bio-Based Poly(tulipalin A) Coatings: Structure and Material Properties**

Graur, V., Mukherjee, A., Sebakhy, K. O. & Bose, R. K., Oct-2022, In: Polymers. 14, 19, 11 p., 3993.

**Designing End-of-life Recyclable Polymers via Diels-Alder Chemistry: A Review on the Kinetics of Reversible Reactions**

van den Tempel, P., Picchioni, F. & Bose, R. K., Jul-2022, In: Macromolecular Rapid Communications. 43, 13 (SI), 13 p., e2200023.

**All-dry, one-step synthesis, doping and film formation of conductive polypyrrole**

Dianatdar Langeroudi, A., Miola, M., De Luca, O., Rudolf, P., Picchioni, F. & Bose, R., 14-Jan-2022, In: Journal of Materials Chemistry C. 10, 2, p. 557-570 14 p.

**Cross-Linking of Polypropylene via the Diels-Alder Reaction**

Muljana, H., Arends, S., Remerie, K., Boven, G., Picchioni, F. & Bose, R. K., 2022, In: Polymers. 14, 6, 16 p., 1176.

**Cross-Linking of Polypropylene with Thiophene and Imidazole**

Muljana, H., Remerie, K., Boven, G., Picchioni, F. & Bose, R., 2022, In: Polymers. 14, 21 p., 2198.

**Production and Application of Polymer Foams Employing Supercritical Carbon Dioxide**

de Macedo Rooweder Lima, G. & Bose, R., 2022, In: Advances in Polymer Technology. 2022, 23 p., 8905115.

**Rapid Self-Healing in IR-Responsive Plasmonic Indium Tin Oxide/Polyketone Nanocomposites**

Pucci, A., Mattoli, V., Pineider, F., Bose, R., Gabbani, A., Mazzotta, A., Araya-Hermosilla, E., Orozco Gutierrez, F., Picchioni, F., Ruggeri, M., Cappello, V. & Gemmi, M., 2022, In: Journal of Materials Chemistry A. 10, 24, p. 12957-12967 11 p.

**Electroactive Self-Healing Shape Memory Polymer Composites Based on Diels–Alder Chemistry**

Orozco Gutierrez, F., Kaveh, M., Santosa, D., de Macedo Rooweder Lima, G., Ribas Gomes, D., Pei, Y. T., Araya Hermosilla, R., Moreno-Villoslada, I., Picchioni, F. & Bose, R., 10-Dec-2021, In: ACS Applied Polymer Materials. 3, 12, p. 6147-6156 10 p.

**Relationship between Structure and Rheology of Hydrogels for Various Applications**

Stojkov, G., Niyazov, Z., Picchioni, F. & Bose, R., Dec-2021, In: Gels. 7, 4, 20 p., 255.

**Polytriphenylamine composites for energy storage electrodes: Effect of pendant vs. backbone polymer architecture of the electroactive group**

Dianatdar Langeroudi, A., Akin, O., Mongatti, I., Momand, J., Ruggeri, G., Picchioni, F. & Bose, R., 1-Nov-2021, In: RSC Advances. 56, p. 35187–35196 9 p.

**Maleimide Self-Reaction in Furan/Maleimide-Based Reversibly Crosslinked Polyketones: Processing Limitation or Potential Advantage?**

Orozco Gutierrez, F., Niyazov, Z., Garnier, T., Migliore, N., Zdvizhkov, A. T., Raffa, P., Moreno-Villoslada, I., Picchioni, F. & Bose, R., Apr-2021, In: Molecules. 26, 8, 8 p., 2230.

**Self-Healing Polymer Nanocomposite Materials by Joule Effect**

Orellana, J., Moreno-Villoslada, I., Bose, R. K., Picchioni, F., Flores, M. E. & Araya-Hermosilla, R., 22-Feb-2021, In: Polymers. 13, 4, 649.

### **Thermally Switchable Electrically Conductive Thermoset rGO/PK Self-Healing Composites**

Araya-Hermosilla, E., Giannetti, A., de Macedo R. Lima, G., Orozco, F., Picchioni, F., Mattoli, V., Bose, R. K. & Pucci, A., 21-Jan-2021, In: *Polymers*. 13, 3, p. 1-19 17 p., 339.

### **Intrinsic Self-Healing Epoxies in Polymer Matrix Composites (PMCs) for Aerospace Applications**

Paolillo, S., Bose, R. K., Hernández Santana, M. & Grande, A. M., 2-Jan-2021, In: *Polymers*. 13, 2, p. 1-32 32 p., 201.

### **Thermally Reversible Polymeric Networks from Vegetable Oils**

Yuliati, F., Hong, J., Indriadi, K. S., Picchioni, F. & Bose, R. K., Aug-2020, In: *Polymers*. 12, 8, 23 p., 1708.

### **Diels-Alder-based thermo-reversibly crosslinked polymers: Interplay of crosslinking density, network mobility, kinetics and stereoisomerism**

Orozco, F., Li, J., Ezekiel, U., Niyazov, Z., Floyd, L., Lima, G. M. R., Winkelman, J. G. M., Moreno-Villoslada, I., Picchioni, F. & Bose, R. K., 15-Jul-2020, In: *European Polymer Journal*. 135, 8 p., 109882.

### **Highly Branched Waxy Potato Starch-Based Polyelectrolyte: Controlled Synthesis and the Influence of Chain Composition on Solution Rheology**

Fan, Y., Bose, R. K. & Picchioni, F., 10-Jun-2020, In: *Industrial and Engineering Chemistry Research*. 59, 23, p. 10847-10856 10 p.

### **Electrically Self-Healing Thermoset MWCNTs Composites Based on Diels-Alder and Hydrogen Bonds**

Lima, G. M. R., Orozco, F., Picchioni, F., Moreno-Villoslada, I., Pucci, A., Bose, R. K. & Araya-Hermosilla, R., Nov-2019, In: *Polymers*. 11, 11, 15 p., 1885.

### **A Tough Metal-Coordinated Elastomer: A Fatigue-Resistant, Notch-Insensitive Material with an Excellent Self-Healing Capacity**

Gai, G., Liu, L., Li, C-H., Bose, R., Li, D., Guo, N. & Kong, B., Apr-2019, In: *ChemPlusChem*. 84, 4, p. 432-440 9 p.

### **Thermoreversible Polymeric Nanocomposites**

Bose, R., Picchioni, F. & Muljana, H., 23-Jan-2019, *Nanocomposites: Recent Evolutions*. Sivasankaran, S. (ed.). IntechOpen

### **Synthesis of zwitterionic copolymers via copper-mediated aqueous living radical grafting polymerization on starch**

Fan, Y., Migliore, N., Raffa, P., Bose, R. K. & Picchioni, F., 22-Jan-2019, In: *Polymers*. 11, 2, 12 p., 192.

A translation of the structure of mussel byssal threads into synthetic materials by the utilization of histidine-rich block copolymers

Enke, M., Bose, R. K., Zechel, S., Vitz, J., Deubler, R., Garcia, S. J., van der Zwaag, S., Schacher, F. H., Hager, M. D. & Schubert, U. S., 7-Jul-2018, In: *Polymer Chemistry*. 9, 25, p. 3543-3551 9 p.

### **On the effect of crosslinking density over the self-healing kinetics of Diels-Alder-based thermoset polymers: Differential scanning calorimetry study**

Li, J., Orozco Gutierrez, F., Bose, R., Vakis, A. I. & Picchioni, F., 2018.

A New Approach Toward Metal-Free Self-Healing Ionomers Based on Phosphate and Methacrylate Containing Copolymers

Dahlke, J., Bose, R. K., Zechel, S., Garcia, S. J., van der Zwaag, S., Hager, M. D. & Schubert, U. S., Dec-2017, In: *Macromolecular Chemistry and Physics*. 218, 23, 9 p., 1700340.

### **Contributions of hard and soft blocks in the self-healing of metal-ligand-containing block copolymers**

Bose, R. K., Enke, M., Grande, A. M., Zechel, S., Schacher, F. H., Hager, M. D., Garcia, S. J., Schubert, U. S. & van der Zwaag, S., 1-Aug-2017, In: *European Polymer Journal*. 93, p. 417-427 11 p.

Healing of early stage fatigue damage in ionomer/Fe<sub>3</sub>O<sub>4</sub> nanoparticle composites

Post, W., Bose, R. K., Garcia, S. J. & Van Der Zwaag, S., 15-Dec-2016, In: *Polymers*. 8, 12, 15 p., 436.

Effect of the Dianhydride/Branched Diamine Ratio on the Architecture and Room Temperature Healing Behavior of Polyetherimides

Susa, A., Bose, R. K., Grande, A. M., Van Der Zwaag, S. & Garcia, S. J., 14-Dec-2016, In: *ACS Applied Materials and Interfaces*. 8, 49, p. 34068-34079 12 p.

High Piezoelectric Voltage Coefficient in Structured Lead-Free (K,Na,Li)NbO<sub>3</sub> Particulate—Epoxy Composites

James, N. K., Deutz, D. B., Bose, R. K., van der Zwaag, S. & Groen, P., Dec-2016, In: *Journal of the American Ceramic Society*. 99, 12, p. 3957-3963 7 p.

A metal salt dependent self-healing response in supramolecular block copolymers

Enke, M., Bose, R. K., Bode, S., Vitz, J., Schacher, F. H., Garcia, S. J., Van Der Zwaag, S., Hager, M. D. & Schubert, U. S., 22-Nov-2016, In: *Macromolecules*. 49, 22, p. 8418-8429 12 p.

Self-Healing Polymer Networks Based on Reversible Michael Addition Reactions

Kuhl, N., Geitner, R., Bose, R. K., Bode, S., Dietzek, B., Schmitt, M., Popp, J., Garcia, S. J., van der Zwaag, S., Schubert, U. S. & Hager, M. D., 1-Nov-2016, In: *Macromolecular Chemistry and Physics*. 217, 22, p. 2541-2550 10 p.

Healing by the Joule effect of electrically conductive poly(ester-urethane)/carbon nanotube nanocomposites

Willocq, B., Bose, R. K., Khelifa, F., Garcia, S. J., Dubois, P. & Raquez, J. M., 12-Feb-2016, In: *Journal of Materials Chemistry A*. 4, 11, p. 4089-4097 9 p.

Characterization of self-healing polymers: From macroscopic healing tests to the molecular mechanism

Bode, S., Enke, M., Hernandez, M., Bose, R. K., Grande, A. M., van der Zwaag, S., Schubert, U. S., Garcia, S. J. & Hager, M. D., 1-Feb-2016, *Advances in Polymer Science*. Springer New York LLC, Vol. 273. p. 113-142 30 p. (*Advances in Polymer Science*; vol. 273).

Correlation between scratch healing and rheological behavior for terpyridine complex based metallopolymers

Bode, S., Enke, M., Bose, R. K., Schacher, F. H., Garcia, S. J., Van Der Zwaag, S., Hager, M. D. & Schubert, U. S., 7-Sept-2015, In: *Journal of Materials Chemistry A*. 3, 44, p. 22145-22153 9 p.

Relationship between the network dynamics, supramolecular relaxation time and healing kinetics of cobalt poly(butyl acrylate) ionomers

Bose, R. K., Hohlbein, N., Garcia, S. J., Schmidt, A. M. & Van Der Zwaag, S., 9-Jul-2015, In: *Polymer (United Kingdom)*. 69, p. 228-232 5 p.

Acylhydrazones as reversible covalent crosslinkers for self-healing polymers

Kuhl, N., Bode, S., Bose, R. K., Vitz, J., Seifert, A., Hoepfener, S., Garcia, S. J., Spange, S., Van Der Zwaag, S., Hager, M. D. & Schubert, U. S., 10-Jun-2015, In: *Advanced Functional Materials*. 25, 22, p. 3295-3301 7 p.

Connecting supramolecular bond lifetime and network mobility for scratch healing in poly(butyl acrylate) ionomers containing sodium, zinc and cobalt

Bose, R. K., Hohlbein, N., Garcia, S. J., Schmidt, A. M. & Van Der Zwaag, S., 21-Jan-2015, In: *Physical Chemistry Chemical Physics*. 17, 3, p. 1697-1704 8 p.

A rheological and spectroscopic study on the kinetics of self-healing in a single-component diels-alder copolymer and its underlying chemical reaction

Bose, R. K., Kötteritzsch, J., Garcia, S. J., Hager, M. D., Schubert, U. S. & Van Der Zwaag, S., 15-Jun-2014, In: *Journal of Polymer Science, Part A: Polymer Chemistry*. 52, 12, p. 1669-1675 7 p.

Electric field-induced, reversible lotus-to-rose transition in nanohybrid shish kebab paper with hierarchical roughness

Laird, E. D., Bose, R. K., Qi, H., Lau, K. K. S. & Li, C. Y., 27-Nov-2013, In: *ACS Applied Materials and Interfaces*. 5, 22, p. 12089-12098 10 p.

Self-healing metallopolymers based on cadmium bis(terpyridine) complex containing polymer networks  
Bode, S., Bose, R. K., Matthes, S., Ehrhardt, M., Seifert, A., Schacher, F. H., Paulus, R. M., Stumpf, S., Sandmann, B., Vitz, J., Winter, A., Hoepfner, S., Garcia, S. J., Spange, S., Van Der Zwaag, S., Hager, M. D. & Schubert, U. S., 21-Sept-2013, In: *Polymer Chemistry*. 4, 18, p. 4966-4973 8 p.

Methods to monitor and quantify (self-) healing in polymers and polymer systems  
Bose, R. K., Lafont, U., Vega, J. M., Garcia, S. J. & van der Zwaag, S., 24-Jun-2013, *Self-Healing Polymers: From Principles to Applications*. Wiley-VCH Verlag GmbH & Co. KGaA, p. 335-359 25 p.

Carbon nanotube-directed polytetrafluoroethylene crystal growth via initiated chemical vapor deposition  
Laird, E. D., Bose, R. K., Wang, W., Lau, K. K. S. & Li, C. Y., 12-Feb-2013, In: *Macromolecular Rapid Communications*. 34, 3, p. 251-256 6 p.

Graft polymerization of anti-fouling PEO surfaces by liquid-free initiated chemical vapor deposition  
Bose, R. K., Nejati, S., Stuffle, D. R. & Lau, K. K. S., 11-Sept-2012, In: *Macromolecules*. 45, 17, p. 6915-6922 8 p.

Microencapsulation of a crop protection compound by initiated chemical vapor deposition  
Bose, R. K., Heming, A. M. & Lau, K. K. S., 28-Aug-2012, In: *Macromolecular Rapid Communications*. 33, 16, p. 1375-1380 6 p.

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Nejati, S., Carter, Z., Bose, R. K. & Lau, K. K. S., 2012, *Proceedings of the 19th International Workshop on Active-Matrix Flatpanel Displays and Devices - TFT Technologies and FPD Materials, AM-FPD 2012*. p. 25-28 4 p. 6294911

Initiated chemical vapor deposition of poly(2-hydroxyethyl methacrylate) hydrogels  
Bose, R. K. & Lau, K. K. S., 2-May-2011, In: *Thin Solid Films*. 519, 14, p. 4415-4417 3 p.

Photon to thermal response of a single patterned gold nanorod cluster under near-infrared laser irradiation  
Jo, W., Freedman, K., Yi, D. K., Bose, R. K., Lau, K. K. S., Solomon, S. D. & Kim, M. J., Mar-2011, In: *Biofabrication*. 3, 1, 015002.

Mechanical properties of ultrahigh molecular weight PHEMA hydrogels synthesized using initiated chemical vapor deposition  
Bose, R. K. & Lau, K. K. S., 9-Aug-2010, In: *Biomacromolecules*. 11, 8, p. 2116-2122 7 p.

Initiated CVD of poly(2-hydroxyethyl methacrylate) hydrogels: Synthesis, characterization and in-vitro biocompatibility  
Bose, R. K. & Lau, K. K. S., Jun-2009, In: *Chemical Vapor Deposition*. 15, 4-6, p. 150-155 6 p.

Initiated chemical vapor deposition (iCVD) of hydrogel polymers  
Bose, R. K., Nejati, S. & Lau, K. K. S., 2009, *ECS Transactions - EuroCVD 17/CVD 17. 8 PART 2* ed. Vol. 25. p. 1229-1235 7 p.

## Activities

### Polymers (Journal)

Ranjita Bose (Guest editor)  
1-Feb-2020 → 31-Jan-2021

## Press/Media

**Dr. Bose, Dr. Raffa and Prof. Picchioni partners in EU's Horizon 2020 FET Open Program consortium**  
Patrizio Raffa, Francesco Picchioni & Ranjita Bose

13/10/2020  
1 Media contribution