

### Antimicrobial particles based on Cu<sub>2</sub>ZnSnS<sub>4</sub> monograins

Žalneravicius, Rokas; Pakštas, Vidas; Grinciene, Giedre; Klimas, Vaclovas; Paškevičius, Algimantas; **Timmo, Kristi; Kauk-Kuusik, Marit**; Franckevicius, Marius; Niaura, Gediminas; Talaikis, Martynas; Jagminas, Arunas; Ramanavicius, Arunas Colloids and Surfaces B: Biointerfaces 2023 / art. 113275 <https://doi.org/10.1016/j.colsurfb.2023.113275> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Band gap engineering by cationic substitution in Sn(Zr<sub>1-x</sub>Ti<sub>x</sub>)Se<sub>3</sub> alloy for bottom sub-cell application in solar cells

Kondrotas, Rokas; Pakštas, Vidas; Franckevicius, Marius; Suchodolskis, Arturas; Tumenas, Saulius; Jasinskas, Vidmantas; Juskenas, Remigijus; Krotkus, Arunas; **Muska, Katri; Kauk-Kuusik, Marit** Journal of materials chemistry A 2023 / p. 26488–26498 : ill <https://doi.org/10.1039/D3TA05550G> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Characterization of tetrahedrite Cu<sub>10</sub>Cd<sub>2</sub>Sb<sub>4</sub>S<sub>13</sub> monograin materials grown in molten CdI<sub>2</sub> and LiI

Ghisani, Fairouz; **Timmo, Kristi; Altosaar, Mare; Mikli, Valdek; Pilvet, Maris; Kaupmees, Reelika; Krustok, Jüri; Grossberg, Maarja; Kauk-Kuusik, Marit** Thin solid films 2021 / art. 138980 <https://doi.org/10.1016/j.tsf.2021.138980> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Chemical etching of tetrahedrite Cu<sub>10</sub>Cd<sub>2</sub>Sb<sub>4</sub>S<sub>13</sub> monograin powder materials for solar cell applications

Ghisani, Fairouz; **Timmo, Kristi; Altosaar, Mare; Mikli, Valdek; Danilson, Mati; Grossberg, Maarja; Kauk-Kuusik, Marit** Materials science in semiconductor processing 2022 / art. 106291 <https://doi.org/10.1016/j.mssp.2021.106291> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Comparative study of SnS recrystallization in molten CdI<sub>2</sub>, SnCl<sub>2</sub> and KI

**Timmo, Kristi; Kauk-Kuusik, Marit; Pilvet, Maris; Mikli, Valdek; Kärber, Erki; Raadik, Taavi; Leinemann, Inga; Altosaar, Mare; Raudoja, Jaan** Physica status solidi (c) 2016 / p. 8-12 : ill <https://doi.org/10.1002/pssc.201510082> [Journal metrics at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

### Compositionally tunable structure and optical properties of Cu<sub>1.85</sub>(Cd<sub>x</sub>Zn<sub>1-x</sub>)<sub>1.1</sub>SnS<sub>4.1</sub> (0 ≤ x ≤ 1) monograin powders

**Pilvet, Maris; Kauk-Kuusik, Marit; Altosaar, Mare; Grossberg, Maarja; Danilson, Mati; Timmo, Kristi; Mere, Arvo; Mikli, Valdek** Thin solid films 2015 / p. 180-183 : ill <http://dx.doi.org/10.1016/j.tsf.2014.10.091>

### Comprehensive study of photoluminescence and device properties in Cu<sub>2</sub>Zn(Sn<sub>1-x</sub>Gex)<sub>4</sub> monograins and monograin layer solar cells

**Mengü, Idil; Muska, Katri; Pilvet, Maris; Mikli, Valdek; Dudutiene, Evelina; Kondrotas, Rokas; Krustok, Jüri; Kauk-Kuusik, Marit; Grossberg-Kuusik, Maarja** Solar energy materials and solar cells 2024 / art. 113124 <https://doi.org/10.1016/j.solmat.2024.113124>

### Cu<sub>2</sub>ZnSnS<sub>4</sub> monograin layer solar cells for flexible photovoltaic applications

**Kauk-Kuusik, Marit; Timmo, Kristi; Pilvet, Maris; Muska, Katri; Danilson, Mati; Krustok, Jüri; Josepson, Raavo; Mikli, Valdek; Grossberg-Kuusik, Maarja** Journal of materials chemistry A 2023 / p. 23640-23652 <https://doi.org/10.1039/D3TA04541B> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Cu(In,Ga)Se<sub>2</sub> monograin powders with different Ga content for solar cells

**Timmo, Kristi; Kauk-Kuusik, Marit; Pilvet, Maris; Altosaar, Mare; Grossberg, Maarja; Danilson, Mati; Kaupmees, Reelika; Mikli, Valdek; Raudoja, Jaan; Varema, Tiit** Solar energy 2018 / p. 648–655 : ill <https://doi.org/10.1016/j.solener.2018.10.078> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Detailed insight into the CZTS/CdS interface modification by air annealing in monograin layer solar cells

**Kauk-Kuusik, Marit; Timmo, Kristi; Muska, Katri; Pilvet, Maris; Krustok, Jüri; Josepson, Raavo; Brammertz, Guy; Vermang, Bart; Danilson, Mati; Grossberg, Maarja** ACS Applied Energy Materials 2021 / p. 12374–12382 <https://doi.org/10.1021/acsaem.1c02186> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Detailed photoluminescence study of Cu<sub>2</sub>Ge(SSe)<sub>3</sub> microcrystals

**Kuusik, Jüri; Kaupmees, Reelika; Li, Xiaofeng; Kauk-Kuusik, Marit; Grossberg, Maarja** AIP advances 2021 / art. 085105 <https://doi.org/10.1063/5.0053928> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Development of band gap tuned CU<sub>2</sub>ZN(SN<sub>1-x</sub>GEX)<sub>4</sub> monograin powders

**Mengu, Idil; Grossberg-Kuusik, Maarja; Muska, Katri; Pilvet, Maris; Mikli, Valdek; Kaupmees, Reelika; Krustok, Jüri; Kauk-Kuusik, Marit** Graduate School of Functional Materials and Technology (GSFMT) Scientific Conference : abstracts 2022 / 39 I. [Graduate School of Functional Materials and Technology \(GSFMT\) Scientific Conference 2022](#)

### Doping and alloying of kesterites

Romanyuk, Yaroslav E.; Haass, Stefan G.; Giraldo, Sergio; **Kauk-Kuusik, Marit** Journal of Physics : Energy 2019 / art. 044004, 22 p. : ill <https://doi.org/10.1088/2515-7655/ab23bc>

### Eesti teadlaste osalusel arendatud päikesepaneele saab teha odavatest ja maakoorest laialt levinud materjalidest

**Kauk-Kuusik, Marit** toostusuudised.ee 2025 [Eesti teadlaste osalusel arendatud päikesepaneele saab teha odavatest ja maakoorest laialt levinud materjalidest](#)

### Effect of absorber surface modification on the optoelectronic properties of Cu<sub>2</sub>CdGeSe<sub>4</sub> solar cells

Li, Xiaofeng; Pilvet, Maris; Timmo, Kristi; Grossberg, Maarja; Danilson, Mati; Mikli, Valdek; Kauk-Kuusik, Marit Thin solid films 2020 / art. 137822, 7 p. : ill <https://doi.org/10.1016/j.tsf.2020.137822> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Effect of germanium incorporation on the properties of kesterite Cu<sub>2</sub>ZnSn(S,Se)<sub>4</sub> monograins

Oueslati, Souhaib; Grossberg, Maarja; Kauk-Kuusik, Marit; Mikli, Valdek; Ernits, Kaia; Meissner, Dieter; Krustok, Jüri Thin solid films 2019 / p. 315–320 : ill <https://doi.org/10.1016/j.tsf.2018.11.020> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Efficiency enhancement of Cu<sub>2</sub>ZnSnS<sub>4</sub> monograin layer solar cells via absorber post-growth treatments

Timmo, Kristi; Dolcet Sadurni, Marc; Pilvet, Maris; Muska, Katri; Altosaar, Mare; Mikli, Valdek; Atlan, Fabien; Guc, Maxim; Izquierdo-Roca, Victor; Grossberg-Kuusk, Maarja; Kauk-Kuusik, Marit Solar energy materials and solar cells 2023 / art. 112090 <https://doi.org/10.1016/j.solmat.2022.112090> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Enhanced grain orientation in Sb<sub>2</sub>Se<sub>3</sub> thin films deposited on Mo/BSG substrates via RF-sputtering and selenization

Uslu, Mehmet Ender; Muska, Katri; Pilvet, Maris; Bereznev, Sergei; Mikli, Valdek; Kauk-Kuusik, Marit; Grossberg-Kuusk, Maarja Materials science in semiconductor processing 2024 / art. 108835 <https://doi.org/10.1016/j.mssp.2024.108835>

### Growth of CZTS-based monograins and their application to membrane solar cells

Mellikov, Enn; Altosaar, Mare; Kauk-Kuusik, Marit; Timmo, Kristi; Meissner, Dieter; Grossberg, Maarja; Krustok, Jüri; Volobujeva, Olga Copper zinc tin sulfide-based thin film solar cells 2015 / p. 289-309 : ill

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### Hydrogen states in mixed-cation CuIn(1-x)Ga<sub>x</sub>Se<sub>2</sub> chalcopyrite alloys : a combined study by first-principles density-functional calculations and muon-spin spectroscopy

Marinopoulos, Apostolos G.; Vilao, Rui C.; Alberto, Helena Vieira; Ribeiro, E. F. M.; Gil, J. M.; Mengyan, P. W.; Goeks, M. R.; Kauk-Kuusik, Marit; Lord, J. S. Philosophical magazine 2021 / p. 2412-2434 <https://doi.org/10.1080/14786435.2021.1972178> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Impact of Cu<sub>2</sub>ZnSn(SexS<sub>1-x</sub>)<sub>4</sub> (x=0.3) compositional ratios on the monograin powder properties and solar cells

Muska, Katri; Kauk-Kuusik, Marit; Grossberg, Maarja; Altosaar, Mare; Pilvet, Maris; Varema, Tiit; Timmo, Kristi; Volobujeva, Olga; Mere, Arvo Thin solid films 2013 / p. 35-38 : ill <https://doi.org/10.1016/j.tsf.2012.10.031> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### Impact of Li and K co-doping on the optoelectronic properties of CZTS monograin powder

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### Influence of alkali iodide fluxes on Cu<sub>2</sub>ZnSnS<sub>4</sub> monograin powder properties and performance of solar cells

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### Investigation of the solar cell materials Cu(In,Ga)Se<sub>2</sub> and Cu<sub>2</sub>ZnSnS<sub>4</sub> with muon spin spectroscopy and density-functional calculations

Vilao, Rui C.; Marinopoulos, Apostolos G.; dos Santos, Diego Garcia; Alberto, Helena Vieira; Gil, Joao Campos; Mengyan, Patrick W.; Kauk-Kuusik, Marit; Lord, James; Weidinger, Alois Journal of applied physics 2024 / art. 055704 <https://doi.org/10.1063/5.0205837>

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#### **Low temperature time resolved photoluminescence in ordered and disordered Cu<sub>2</sub>ZnSnS<sub>4</sub> single crystals**

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#### **Meie Eesti naised : Naisteadlased, kes parandavad tervist, vaimset heaolu, päikeseenergeetikat ja Eesti majandust**

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[Meie Eesti naised : Naisteadlased, kes parandavad tervist, vaimset heaolu, päikeseenergeetikat ja Eesti majandust](#)

#### **Modification of the optoelectronic properties of Cu<sub>2</sub>CdSnS<sub>4</sub> through low-temperature annealing**

Pilvet, Maris; Kauk-Kuusik, Marit; Grossberg, Maarja; Raadik, Taavi; Mikli, Valdek; Traksmäa, Rainer; Raudoja, Jaan; Timmo, Kristi; Krustok, Jüri Journal of alloys and compounds 2017 / p. 820-825 : ill <https://doi.org/10.1016/j.jallcom.2017.06.307>  
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#### **Nano-scale sulfurization of the Cu<sub>2</sub>ZnSnSe<sub>4</sub> crystal surface for photovoltaic applications**

Kauk-Kuusik, Marit; Li, Xiaofeng; Pilvet, Maris; Timmo, Kristi; Mikli, Valdek; Kaupmees, Reelika; Danilson, Mati; Grossberg, Maarja Journal of materials chemistry A 2019 / p. 24884-24890 : ill <https://doi.org/10.1039/C9TA08020A> [Journal metrics at Scopus](#)  
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#### **Novel Cu<sub>2</sub>CdSnS<sub>4</sub> and Cu<sub>2</sub>ZnGeSe<sub>4</sub> absorber materials for monograin layer solar cell application**

Timmo, Kristi; Kauk-Kuusik, Marit; Altosaar, Mare; Raudoja, Jaan; Raadik, Taavi; Grossberg, Maarja; Varema, Tiit; Pilvet, Maris; Leinemann, Inga; Volobujeva, Olga; Mellikov, Enn EU PVSEC proceedings 2013 / p. 2385-2388 : ill

#### **Observation of band gap fluctuations and carrier localization in Cu<sub>2</sub>CdGeSe<sub>4</sub>**

Krustok, Jüri; Raadik, Taavi; Kaupmees, Reelika; Grossberg, Maarja; Kauk-Kuusik, Marit; Timmo, Kristi; Mere, Arvo Journal of physics D : applied physics 2019 / art. 285102 , 7 p. : ill <https://doi.org/10.1088/1361-6463/ab1afd> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

#### **Observation of photoluminescence edge emission in CuSbSe<sub>2</sub> absorber material for photovoltaic applications**

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#### **Optical and structural properties of orthorhombic and tetragonal polymorphs of Cu<sub>2</sub>CdGeSe<sub>4</sub>**

Grossberg, Maarja; Raadik, Taavi; Krustok, Jüri; Kauk-Kuusik, Marit; Timmo, Kristi; Kaupmees, Reelika; Mikli, Valdek; Mere, Arvo Thin solid films 2018 / p. 44-47 <https://doi.org/10.1016/j.tsf.2018.09.031> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

#### **Optical study of valence band splitting and resonant acceptor states in Cu<sub>2</sub>GeS<sub>3</sub> microcrystals**

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<https://doi.org/10.1063/5.0245139>

#### **Photoelectrochemical properties and band positions of Cd-substituted tetrahedrite Cu<sub>10</sub>Cd<sub>2</sub>Sb<sub>4</sub>S<sub>13</sub> monograin materials grown in molten CdI<sub>2</sub> and Lil**

Ghisani, Fairouz; Timmo, Kristi; Altosaar, Mare; Oueslati, Souhaib; Pilvet, Maris; Kauk-Kuusik, Marit Thin Solid Films 2022 / art. 139030 <https://doi.org/10.1016/j.tsf.2021.139030> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

#### **Photoluminescence study of deep donor- deep acceptor pairs in Cu<sub>2</sub>ZnSnS<sub>4</sub>**

Krustok, Jüri; Raadik, Taavi; Grossberg, Maarja; Kauk-Kuusik, Marit; Trifiletti, V.; Binetti, S. Materials science in semiconductor processing 2018 / p. 52-55 : ill <https://doi.org/10.1016/j.mssp.2018.02.025> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

#### **Photoluminescence study of disordering in the cation sublattice of Cu<sub>2</sub>ZnSnS<sub>4</sub>**

Grossberg, Maarja; Krustok, Jüri; Raadik, Taavi; Kauk-Kuusik, Marit; Raudoja, Jaan Current applied physics 2014 / p. 1424-1427 : ill <https://doi.org/10.1016/j.cap.2014.08.013> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

#### **p-n junction improvements of Cu<sub>2</sub>ZnSnS<sub>4</sub>/CdS monograin layer solar cells**

Kauk-Kuusik, Marit; Timmo, Kristi; Danilson, Mati; Altosaar, Mare; Grossberg, Maarja; Ernits, Kaia Applied surface science

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### **Post-growth annealing effect on the performance of Cu<sub>2</sub>ZnSnSe<sub>4</sub> monograin layer solar cells**

**Kauk-Kuusik, Marit; Altosaar, Mare; Muska, Katri; Pilvet, Maris; Raudoja, Jaan; Timmo, Kristi; Varema, Tiit; Grossberg, Maarja; Mellikov, Enn; Volobujeva, Olga** Thin solid films 2013 / p. 18-21 : ill <https://doi.org/10.1016/j.tsf.2012.11.075> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Preparation and characterization of SbSeI thin films**

**Dolcet Sadurni, Marc; Timmo, Kristi; Mikli, Valdek; Volobujeva, Olga; Mengü, Idil; Krustok, Jüri; Grossberg-Kuusk, Maarja; Kauk-Kuusik, Marit** Journal of science: Advanced materials and devices 2024 / art. 100664 <https://doi.org/10.1016/j.jsamd.2023.100664>

### **Properties of Cu-Sb-Se thin films deposited by magnetron co-sputtering for solar cell applications**

**Penežko, Aleksei; Kauk-Kuusik, Marit; Volobujeva, Olga; Grossberg, Maarja** Thin solid films 2021 / art. 139004 <https://doi.org/10.1016/j.tsf.2021.139004> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Properties of CuSbSe<sub>2</sub> and Sb<sub>2</sub>Se<sub>3</sub> absorber materials for solar cell applications = Päikesepatarei absorbermaterjalide CuSbSe<sub>2</sub> ja Sb<sub>2</sub>Se<sub>3</sub> omaduste uurimine**

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### **Properties of CuSbSe<sub>2</sub> thin film solar cell absorbers deposited by magnetron co-sputtering**

**Penežko, Aleksei; Grossberg, Maarja; Volobujeva, Olga; Kauk-Kuusik, Marit** GSFMT Scientific Conference 2020 : Tallinn, February 4-5, 2020 : abstracts 2020 / p. 71 <http://fmtdk.ut.ee/wp-content/uploads/2020/01/GSFMT2020.pdf>

### **Pulsed laser deposition of chalcogenide sulfides from multi- and single-component targets: the non-stoichiometric material transfer**

Schou, Jorgen; Gansukh, Mungunshagai; Ettliger, Rebecca B.; Cazzaniga, Andrea; **Grossberg, Maarja; Kauk-Kuusik, Marit;** Canulescu, Stela Applied physics. A, Materials science & processing 2018 / Art. nr. 78 <https://doi.org/10.1007/s00339-017-1475-3> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

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### **Pyrite as promising monograin layer solar cell absorber material for in-situ solar cell fabrication on the Moon**

**Kristmann, Katriin; Raadik, Taavi; Altosaar, Mare; Grossberg-Kuusk, Maarja; Krustok, Jüri; Pilvet, Maris; Mikli, Valdek; Kauk-Kuusik, Marit; Makaya, Advenit** Acta Astronautica 2022 / P. 420-424 <https://doi.org/10.1016/j.actaastro.2022.07.043> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Pyrite as prospective monograin layer solar cell absorber material for in-situ solar cell fabrication on the Moon**

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