

Supplemental Information for PhD Dissertation

Defects, scattering, and mobility in complex thermoelectric materials

CLAIRE E. PORTER

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Publication Title	Nature materials	Publication Type	e-Journal
Article Title	Complex thermoelectric materials.	Start Page	105
Date	01/01/2002	End Page	114
Language	English	Issue	2
Country	United Kingdom of Great Britain and Northern Ireland	Volume	7
		URL	http://www.nature.com/nmat/
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Title, Description or Numeric Reference of the Portion(s)	Figure 1A	Title of the Article / Chapter the Portion Is From	Complex thermoelectric materials.
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Volume / Edition	7	Publication Date of Portion	2008-01-31
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On the Dopability of Semiconductors and Governing Material Properties

Author: Anuj Goyal, Prashun Gorai, Shashwat Anand, et al
Publication: Chemistry of Materials
Publisher: American Chemical Society
Date: Jun 1, 2020

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Title of new work	PhD Dissertation ("Defects, scattering, and mobility in complex thermoelectric materials")
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Portions	Figure 4
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Publication Title	Physical chemistry chemical physics	Publication Type	e-Journal
Article Title	Optimization of thermoelectric efficiency in SnTe: the case for the light band.	Start Page	20741
Author / Editor	Royal Society of Chemistry (Great Britain)	End Page	20748
Date	01/01/1999	Issue	38
Language	English	Volume	16
Country	United Kingdom of Great Britain and Northern Ireland	URL	http://firstsearch.odc.org/journal=1463-9076;screen=info;ECOIP
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		Publication Type	Journal
Article Title	Controlling thermoelectric transport via native defects in the diamond-like semiconductors Cu ₂ HgGeTe ₄ and Hg ₂ GeTe ₄	Start Page	26189
		End Page	26201
		Issue	46
		Volume	9
Author / Editor	Royal Society of Chemistry (Great Britain)		
Date	01/01/2012		
Language	English		
Country	United Kingdom of Great Britain and Northern Ireland		

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		Start Page	8838
		End Page	8849
Article Title	Extrinsic doping of Hg ₂ GeTe ₄ in the face of defect compensation and phase competition	Issue	26
		Volume	11
		URL	http://pubs.rsc.org/en/journals/journalissues/tc
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Article Title	Apparatus for the room temperature measurement of low field Nernst and magneto-Seebeck coefficients	Publication Type	Journal
		Issue	8
		Volume	95
Author / Editor	OPTICAL SOCIETY OF AMERICA., AMERICAN INSTITUTE OF PHYSICS.	URL	http://aip.scitation.org/journal/rsi
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Author: Gangjian Tan, Wolfgang G. Zeier, Fengyuan Shi, et al

Publication: Chemistry of Materials

Publisher: American Chemical Society

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Article Title	Enhancement of thermoelectric efficiency in PbTe by distortion of the electronic density of states.	Start Page	554
		End Page	557
		Issue	5888
		Volume	321
Author / Editor	American Association for the Advancement of Science.	URL	http://www.sciencemag.org/archive
Date	01/01/1880		
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Editor of Portion(s)	Heremans, Joseph P; Jovovic, Vladimir; Toberer, Eric S; Saramat, Ali; Kurosaki, Ken; Charoenphakdee, Anek; Yamanaka, Shinsuke; Snyder, G Jeffrey	Author of Portion(s)	Heremans, Joseph P; Jovovic, Vladimir; Toberer, Eric S; Saramat, Ali; Kurosaki, Ken; Charoenphakdee, Anek; Yamanaka, Shinsuke; Snyder, G Jeffrey
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My name is Claire Porter and I just successfully defended my PhD in Materials Science at the Colorado School of Mines. I would like to include a figure in my dissertation, and I am seeking your permission since I do not see any reuse/reprint licensing information on the website for the article I am interested

in.

I am interested in including Figure 4 from High thermoelectric performance by resonant dopant

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1/2

11/14/24, 3:26 PM

Mail - Claire Porter (Student) - Outlook

indium in nanostructured SnTe by Zhang et. Al., (2013). Link
here <<https://www.pnas.org/doi/abs/10.1073/pnas.1305735110>>

Please let me know if I have permission to use this figure, and any specific language I need to include in my Figure caption.

Thank you,
Claire

Figure C.4 Reprint/Reuse Permissions

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Publication Title	Physics of the solid state	Publication Type	e-Journal
Article Title	Transverse Nernst-Ettingshausen effect, resonant scattering, and superconductivity in SnTe: In	Start Page	491
		End Page	494
		Issue	3
Author / Editor	American Institute of Physics., American Institute of Physics.Online Journal Publishing Service	Volume	51
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Author:	Joseph P. Heremans, Christopher M. Thrush, and Donald T. Morelli
Publication:	Physical Review B
Publisher:	American Physical Society
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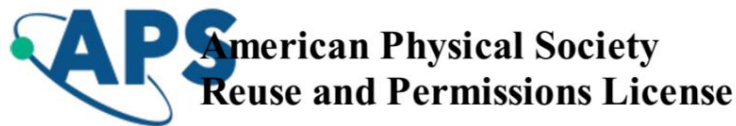
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Author(s):	Claire Porter

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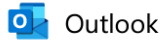
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Re: [EXTERNAL] RE: permission for figure reuse in my PhD dissertation?

From Claire Porter (Student) <cporter@mines.edu>
Date Wed 11/13/2024 9:48 AM
To Heremans, Joseph <heremans.1@osu.edu>

Thank you very much!

From: Heremans, Joseph <heremans.1@osu.edu>
Sent: Wednesday, November 13, 2024 7:50 AM
To: Claire Porter (Student) <cporter@mines.edu>
Subject: [EXTERNAL] RE: permission for figure reuse in my PhD dissertation?

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Yes, of course, please use these figures.

From: Claire Porter (Student) <cporter@mines.edu>
Sent: Tuesday, November 12, 2024 6:32 PM
To: Heremans, Joseph <heremans.1@osu.edu>
Subject: permission for figure reuse in my PhD dissertation?

Dear Dr. Heremans,

This is Claire from Dr. Toberer's group again - thank you for your assistance with my understanding of the Nernst coefficient (Gerlach convention etc.; I reached out to you earlier this year and you sent me some helpful information).

I am now emailing to ask for your permission (APS requires this in addition to obtaining a license to reprint) to reprint Figures 2,3 and 5 from your 2004 work *Thermopower enhancement in lead telluride nanostructures* in my PhD dissertation. They will be included in an appendix chapter on resonant doping that describes how enhancements in Seebeck coefficient can come from not only resonant dopants, but other physical effects e.g., engineering the dominant filtering mechanism (enter your work :)).

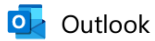
This is the article I would like to include figures from:
<https://journals.aps.org/prb/abstract/10.1103/PhysRevB.70.115334>

Please reply to this email with your permission or denial.
Thank you,
Claire

Chapter 2 (non-lead) co-author permissions

11/27/24, 10:26 AM

Mail - Claire Porter (Student) - Outlook



[EXTERNAL] Re: Sent via www.anl.gov: consent to reprint Hg₂GeTe₄ article in my thesis

From Toriyama, Michael Y. <mtoriyama@anl.gov>
Date Wed 11/27/2024 9:39 AM
To Claire Porter (Student) <cporter@mines.edu>

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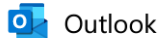
Hi Claire,

Great to hear from you, and congrats again on the publication of the paper!

I give you permission to reuse the publication, "Controlling thermoelectric transport via native defects in the diamond-like semiconductors Cu₂HgGeTe₄ and Hg₂GeTe₄", in your thesis.

Good luck with your thesis and your defense!

Sincerely,
Michael Y. Toriyama
Ph.D., Materials Science and Engineering
Postdoctoral Associate
Argonne National Laboratory



[EXTERNAL] RE: permission to reuse CHGT/HGT paper in my thesis?

From Ortiz, Brenden <ortizbr@ornl.gov>
Date Wed 11/27/2024 10:42 AM
To Claire Porter (Student) <cporter@mines.edu>

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Sounds good to me, good luck!

From: Claire Porter (Student) <cporter@mines.edu>
Sent: Wednesday, November 27, 2024 11:48 AM
To: Ortiz, Brenden <ortizbr@ornl.gov>
Subject: [EXTERNAL] permission to reuse CHGT/HGT paper in my thesis?

Hi Brenden,


I hope all is well by you! Do I have your permission to reuse "Controlling thermoelectric transport via native defects in the diamond-like semiconductors Cu₂HgGeTe₄ and Hg₂GeTe₄" in my thesis? I have obtained permission from RSC and I just need co-author permission.

Thank you!
Claire

Chapter 3 (non-lead) co-author permissions

11/27/24, 10:25 AM

Mail - Claire Porter (Student) - Outlook

 Outlook

Re: permission to reuse HGT doping paper in my thesis?

From Kamil Ciesielski <kciesielski@mines.edu>
Date Wed 11/27/2024 10:01 AM
To Claire Porter (Student) <cporter@mines.edu>

Hey Claire,

You have my permission to reuse the work :).

From: Claire Porter (Student) <cporter@mines.edu>
Sent: Wednesday, November 27, 2024 9:49:43 AM
To: Kamil Ciesielski <kciesielski@mines.edu>
Subject: permission to reuse HGT doping paper in my thesis?

Hi Kamil,

Do I have your permission to reuse our co-authored article "Extrinsic doping of Hg₂GeTe₄ in the face of defect compensation and phase competition" in my thesis? I have permission from RSC, but I need co-author permission. You can simply reply with "You have my permission to reuse the work".

Thank you and have a great Thanksgiving!
Claire

Chapter 4 (non-lead) co-author permissions

11/27/24, 10:38 AM

Mail - Claire Porter (Student) - Outlook

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[EXTERNAL] Re: permission to use publication DOI 10.1063/5.0222406 in my thesis?

From Crawford, Caitlin M (US 313A) <caitlin.m.crawford@jpl.nasa.gov>

Date Tue 11/26/2024 11:40 AM

To Claire Porter (Student) <cporter@mines.edu>

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Hi Claire,

I approve the inclusion of publication <https://doi.org/10.1063/5.0222406> in your dissertation.

Best,
Dr. Caitlin Crawford

From: Claire Porter (Student) <cporter@mines.edu>

Date: Tuesday, November 26, 2024 at 10:38 AM

To: Crawford, Caitlin M (US 313A) <caitlin.m.crawford@jpl.nasa.gov>

Subject: [EXTERNAL] permission to use publication DOI 10.1063/5.0222406 in my thesis?

Hi Caitlin,

I would like to include our RSI publication on the Nernst apparatus (<https://doi.org/10.1063/5.0222406>, **Apparatus for the room temperature measurement of low field Nernst and magneto-Seebeck coefficients**) as a chapter in my thesis, and I need your co-author permission to do so.

If you agree to me reusing the publication in my thesis, can you please reply to this email stating that you approve the inclusion of publication <https://doi.org/10.1063/5.0222406> in my dissertation?

Thank you!
Claire