Jesper Grodal: Curriculum Vitæ

Department of Mathematical Sciences

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Born: October 31, 1972 (Copenhagen, Denmark), 3 children born '09, '11, '14.

Fields of research:

Algebraic Topology, Lie groups, finite groups, representation theory, homotopical group theory, homotopy theory of classifying spaces.

Education:

1997 - 2000	Massachusetts Institute of Technology: Ph.D. in Mathematics Sept 2000.
	(Thesis title: Higher limits via subgroup complexes; Advisor: Haynes Miller.)
1991 - 1997	University of Copenhagen: B.S. in Mathematics and Physics 1994
	Candidatus Scientiarum (M.S.) in Mathematics 1997.

Employment:

2006 -	Professor of Mathematics	University of Copenhagen
$2022 \; (2md)$	Visting Professor	HIM, Bonn
2021 (6mo, virtual)	Member	IAS, Princeton
2018 (6md)	Visiting Professor and member	Cambridge Univ. and Isaac Newton Institute
2015 (3md)	Visiting Professor	HIM/MPIM, Bonn
2014 (5mo)	Research Professor	MSRI, Berkeley
2012 (2md)	Member	IHES, Bures-sur-Yvette
2008 (2md)	Member	MSRI, Berkeley
2003 - 2007	Assistant Professor	University of Chicago (on leave 06-07)
2001 - 2003	L.E. Dickson Instructor	University of Chicago
Summer 2001	Clay Math Liftoff Fellow	Université Paris 13, France
2000-2001	Member	IAS, Princeton

Other long-term visits (≥ 1 month):

Fields Inst. Toronto (95-96), CRM Barcelona (98), MPI Bonn (01), Aberdeen (01), Aarhus (03), Bernoulli Center EPFL Lausanne (05), Mittag-Leffler Inst. Stockholm (06), Vancouver (07).

Selected Prizes and Awards:

2020	Elected member of the Danish Royal Academy of Sciences and Letters
2018	Elected Fellow of the American Mathematical Society for "contributions to
	algebraic topology, representation theory and their interactions,
	and for service to the profession"
2010	Invited Speaker, International Congress of Mathematicians 2010
2010-2019	DNRF Centre for Symmetry and Deformation (DKK 90M)
2008-2013	Univ of Copenhagen Programme of Excellence (DKK 20M)
2007-2008	Univ of Copenhagen Faculty of Science Research Grant (DKK 920K)
2007-2012	ESF European Young Investigator (EURYI) Award 2006 (EUR 1.13M)
2006	Young Danish Elite Researcher Prize 2006 (DKK 100,000)
2006-2010	Ole Rømer Fellowship (DKK 4.5M awarded, adjusted to DKK 2.2M)
2005-2007	Alfred P. Sloan Research Fellowship (\$45,000)
2001-2007	NSF Grants DMS-0104318 and DMS-0354633 (\$72,480 and \$103,754)
2001	Clay Mathematics Liftoff Fellowship (\$12,000)
2000-2001	Institute for Advanced Study (Princeton) Fellowship (\$34,000)
1997-2000	Knud Højgaards Travel Award
1997-2000	Danish Research Academy Graduate Fellowship
1997	Fulbright Fellowship (declined)

Major conference talks:

Internat. Conf. on Current Trends in Algebraic Topology, Northwestern Univ., USA, Mar 1997 AMS Winter Meeting, Special Session on Homotopy Theory, Baltimore, USA, Jan 1998

AMS Winter Meeting, Special Session on Homotopy Theory, Washington DC, USA, Jan 2000

JAMI Conference, Johns Hopkins University, USA, Mar 2000

Conference on representation theory and computational algebra, Athens GA, USA, May 2000 Workshop on Homotopy theory, Haifa, Israel, Jun 2000

Euro-Mediterranean Topology meeting, Barcelona, Spain, Jul 2000

Oberwolfach Group cohomology meeting, Oberwolfach, Germany, Jul 2000

AMS Winter meeting, New Orleans, USA, Special session on Group Cohomology, Jan 2001

International Conference in Algebraic topology, Isle of Skye, Scotland, UK, Jun 2001

Midwest Topology Seminar, Purdue University, USA, Oct 2001

AMS Regional meeting, Special Session on homotopy theory, Ann Arbor MI, USA, Mar 2002

AMS Summer Conf. honoring Jon Alperin's 65th, Mt. Holyoke, USA, Jun 2002. Plenary Speaker

Topology 2002 in honor of Ib Madsen's 60th, Aarhus, Denmark, Jun 2002, Plenary Speaker

Barcelona Conference of Algebraic Topology 2002, Barcelona, Spain, Jul 2002

AMS 2002 Fall Southwestern Sectional Meeting, Orlando FL, USA, Nov 2002

AMS 2003 Spring Central Sectional Meeting, Bloomington, IN, USA, Apr 2003

First joint international meeting between the AMS and RSME, Seville, Spain, Jun 2003

International Conference on Homotopy Theory, Kinosaki, Japan, Jul 2003

Conference on Applied Homotopy Theory, London ON, Canada, Sep 2003

AMS 2003 Fall Eastern Sectional Meeting, Binghamton NY, USA, Oct 2003

Topology of Manifolds and Homotopy Theory, Banff, Canada, Mar 2004

AMS 2004 Spring Eastern Sectional Meeting, Lawrenceville, NJ, USA, Apr 2004

Lehigh Geometry/Topology Conference, Bethlehem PA, USA, Jun 2004, Principal Speaker

String Topology Workshop, Stanford CA, USA, Aug 2004

International Conference on Algebraic Topology, Hanoi, Vietnam, Aug 2004

International Conference on Homotopy Theory, Arolla, Switzerland, Aug 2004, Plenary Speaker Oberwolfach Topology Meeting, Oberwolfach, Germany, Sept 2004.

Topology and Representation Theory, Lausanne, Switzerland, Apr 2005 Plenary Speaker, 2 talks

LMS workshop on fusion systems and groups, Birmingham, UK, May 2005

2nd joint AMS-DMV Meeting, Mainz, Germany, Jun 2005

Conference on Pure and Applied Topology, Isle of Skye, Scotland, UK, Jun 2005

Banff Topology Meeting, Banff, Canada, Aug 2005

Barcelona Topology Workshop, Barcelona, Spain, Sep 2005

Homotopy theory and group actions, Banff, Canada, Nov 2005, Plenary speaker, 2 talks

Flavors of groups, Banff, Canada, Nov 2005

Union College Mathematics Conference, Schenectady NY, USA, Dec 05, Plenary speaker

Cornell Topology Festival, Cornell NY, USA, May 2006, Plenary speaker, 2 talks

Mittag-Leffler Topology Semester, Stockholm, Sweden, June 2006

Munster Topology Conf. in honor of I. Hambleton's and E. Pedersen's 60th, Germany, June 2006

Oberwolfach Topology Meeting, Oberwolfach, Germany, Sept 2006

Oberwolfach arbeitsgemeinshaft on Twisted K-theory, Oberwolfach, Germany, Sept 2006

Nordic Topology Meeting, Trondheim, Norway, Nov 2006

AMS-PMS Joint International Meeting, Warsaw, Poland, July 2007

Oberwolfach Homotopy Theory Meeting, Oberwolfach, Germany, Sept 2007

Colloque du GDR Topologie Algébrique et Applications, Angers, France, Oct 2007

Danish Mathematical Society Annual Meeting, Lyngby, Denmark, Dec 2007

Algebra and Geometry of Groups and Classifying Spaces, Barcelona, Spain, Feb 2008

Homological Methods In Representation Theory, MSRI Berkeley, USA, April 2008, Plenary speaker

AMS Fall Western Section Meeting, Vancouver, USA, Oct 2008

British-Nordic Congress of Mathematicians, sectional speaker, Oslo, Norway, June 2009

Isle of Skye Conference, Isle of Skye, Scotland, UK, June 2009, Plenary speaker

Fusion Days, Amiens, France, Sept 2009

Theorie locale, groupes finis, et representations, Luminy, France, Oct 2009

Group rep theory and rel topics (for J. Thevenaz), Lausanne, Switzerland, June 2010. Plenary.

Oberwolfach Group Cohomology Meeting, Oberwolfach, Germany, July 2010

Intl. Congr. of Mathematicians 2010, Hyderabad, India, Aug 2010, Sectional speaker (Topology)

Oberwolfach Topology Meeting, Oberwolfach, Germany, Sept 2010

NRW-Topology Meeting 14, Bonn, Germany, Nov 2010

Homotopical approaches to group actions, Copenhagen, Denmark, Aug 2011

Oberwolfach Homotopy Theory Meeting, Oberwolfach, Germany, Sept 2011

Beyond p-compact groups, Barcelona, Spain, May 2012

Stanford Topology Conference 2012, July 2012

Finite groups and related topics, Oxford, UK, Aug 2012

Oberwolfach Topology Meeting, Oberwolfach, Germany, Sept 2012

26th Nordic Congress of Mathematicians, Lund Sweden, June 2013, Plenary Speaker

Masterclass on p-local compact groups, Copenhagen, Denmark, Oct 2013

MSRI Committee of Academic Sponsors Meeting, Berkeley, USA, Feb 2014

Manifolds, K-theory, and related topics, Dubrovnik, Croatia, June 2014

Oberwolfach Topology Meeting, Oberwolfach, Sept 2014

Nordic Topology Meeting, Trondheim, Norway, Nov 2014.

23rd NRW-Topology Meeting, Münster, Germany, April 2015

Oberwolfach Group Cohomology Meeting, Oberwolfach, Germany, May 2015

Topology and Geometry Conference in Bonn, Aug 2015. Plenary Speaker

27th Nordic Congr. of Mathematicians, Stockholm, Mar 2016, Sectional speaker (Geom/Top)

PIMS Summer School on Reps of Finite Groups, for D. Benson, July 2016 (4 talk lecture series)

31th British Topology Meeting, Glasgow, Aug 2016

Endo-p-permutation and trivial source modules, Lausanne, Aug 2016 (3 talk lecture series)

Fusion systems and equivariant algebraic topology, HIM Bonn, Nov 2016 (2 talk lecture lectures) Algebraic Topology and Representation Theory, Lille, France, June 2017 (4 talk lecture series) Chromatic Phenomena and Duality in Homotopy Theory and Representation Theory, Oberwolfach, Germany, March 2018

CRM Barcelona LIGAT Topology Workshop, Barcelona, Spain, June 2019

5th Bavarian Geometry & Topology Meeting, Regensburg, Germany, July 2019 (2 talks)

International Conference on Algebraic Topology 2019, Shanghai, China, Aug 2019

Descent and chromatic homotopy theory, Strasbourg, France, Sept 2019 (Minicourse, 2 talks)

Conference in honor of Carles Broto's 60th birthday, Malaga, Nov 2019

Topological Methods in Group representation theory, Leicester, Nov 2019 (2 talks)

Oberwolfach Group cohomology meeting, Oberwolfach, Germany, August 2020

 $Recent\ Developments\ in\ Geometric\ Representation\ Theory,\ IAS,\ Princeton,\ Nov\ 2020\ (online\ talk)$

Arbeitsgemeinschaft: Geometric Representation Theory. Oberwolfach, April 2021.

CRM Workshop on Homotopy Theory and Group Theory, Barcelona, July 2021 (online talk).

Counting conjectures and beyond, in honor of Gunter Malle's 60th, INI Cambridge, May 2022

New Directions in Group Theory and Triangulated Categories (online seminar series), May 2022.

Representation Theory and Triangulated Categories, in honor of Henning Krause's 60th, Paderborn, Germany, Sept 2022.

HIM Trimester program (3 talk lectures series), Bonn, Germany, Nov 2022.

New Trends in Algebra, Geometry and Homotopy Theory, in honour of Alejandro Adem's 60th. Merida, Mexico. Nov 2022.

Spectra, triangles, and higher structures, Hausdorff Institute, Bonn, Germany, Dec 2022.

Masterclass on homotopical representation theory, Copenhagen, Denmark, March 2023.

Representations of finite groups, Oberwolfach, Germany. April 2023.

Generalised Lie algebras in Derived Geometry, Utrecht, Netherlands May 2023.

Homotopy: Fruits of the fertile furrow, INI Cambridge, UK, June 2023.

Colloquium talks:

Northwestern University (00), University of Illinois at Chicago (00), Univ Copenhagen (00,03), Wayne State University (01), University of Virginia (04), Technical University of Denmark (06), University of Southern Denmark (06), Aalborg University (07), UC San Diego (08), Aarhus University (09), Univ. Bonn (10), KTH-Stockholm (10), Univ. Münster (11), Roskilde University (11), VU Amsterdam (11), Nice (12), UC Los Angeles (14), Hamburg (16), Wuppertal (17), Lancaster (18), University of East Anglia (18), Stellenbosch University (19) Hausdorff Colloquium, Bonn (19). Paris (20).

Seminar talks (abbreviated):

Université de Louvain La Neuve (97,03), University of Chicago (97,99,00,01,02,05,06), Northwestern University (99,01,02), Purdue University (99,01,04), University of Wisconsin (99,01), MIT (00,01,04,07), Princeton University (4 talk lecture series 00-01, 23), Johns Hopkins University (00,01), Université Paris 13 (00,12), Wayne State University (01, 06 3 talk lecture series), University of Illinois at Chicago (01), Stanford University (02,04,08,14), University of Illinois at Urbana Champaigne (02), Aarhus University (03,03,05), Instituto Superior Technico Lisbon (00), KTH Stockholm (04), UC Berkeley (06, 14), University of British Columbia (06, 06, 08), Oxford (07), Aberdeen (07), MSRI Berkeley (08,14,18), Oregon (08), University of Washington (08), IHES (12), Bilkent University (13), Kaiserslautern (16), Manchester (18), Birmingham (18), INI Cambridge (18). University of Bonn (19). Münster (21).

Teaching:

Undergraduate:

Introduction to Mathematics (Univ. Copenhagen 16, 17, 20, 21, 22, 23)

Honors Calculus sequence (Univ. Chicago 02, 03, 05)

Analysis in \mathbb{R}^n (Univ. Chicago 03)

Elementary Algebraic Topology (Univ. Chicago 03, 04, 05)

Graduate:

- "Categories and topology" (Univ. Copenhagen 09, 11,19, 20, 21, 22, 23)
- "Algebraic Topology II" (Univ. Copenhagen 09, 10, 11)
- "Algebraic Topology" (w/ J. M. Møller, Univ. Copenhagen 07)
- "Homotopy Theory" (w/ N. Wahl, Univ. Copenhagen 06)
- "Proseminar on Algebraic Topology" (w/ J. P. May, Univ. Chicago 04-06)
- "Cohomology of Groups" (Univ. Chicago, 05)
- "Group actions via homotopy theory" (Univ. Chicago 04)

Course responsible overseeing curriculum, exam, and teaching (for courses taught by postdocs): Additional 20+ courses at UCPH.

Advicing and mentoring:

PhD Advisor for 13 PhD students (8 graduated + 5 current) at UCPH:

T. Nørgaard-Sørensen (2013), S. Reeh (2014), I. Laude (2017), B. Böhme (2018), and J. Hunt (2020), K. Hilman (2022), J. van der Meer (2022), V. Subramanian (2023). Current: M. Ramzi, O. Harr, B. Juran, F. Riedel, I. Moselle. Second advisor for 2 graduate students at Univ. Chicago (C. Thatcher, A. Blumberg)

Postdoctoral mentor for 18 postdocs at Univ. Copenhagen of which 14 now tenured/tt professors: R. Stancu (tenured Univ. Jules Verne, Amiens), C. Westerland (tenured Univ. Minnesota), A. Diaz (tenured Univ. Malaga), A. Berglund (tenured Stockholm U.), R. Hepworth (tenured Univ. Aberdeen), D. Ayala (tenured Montana State), S. Basu (tenured Univ. Bangalore), E. Henke (tenured Univ. Dresden), M. Gelvin (industry), A. Lahtinen (Marie Curie Fellow, industry), M. Hausmann (tenured Univ. Bonn), T. Barthel (Marie Curie Fellow, Junior Prof Bonn), S. Gritschacher (Marie Curie Fellow, Postdoc Münster), G. Li, M. Land (tenured Univ. München), P. Pstragowski (tenure track Univ. Washington), B. Briggs (Marie Curie Fellow, tenured Imperial College), S. Carmeli (tenured Weizmann Institute), R. Burklund (tenured Univ. Copenhagen).

Graduate advisor for 12 MS students, 11 of which have continued to PhD:

U. Buchholtz (PhD Stanford), T. Nørgård-Sørensen (PhD Copenhagen), M. Stephan (PhD Lausanne), S. Reeh (PhD Copenhagen), P. Masulli (PhD Aarhus), A. Høgenhaven, (PhD Copenhagen), I. Laude (PhD Copenhagen), Zhipeng Duan (PhD Copenhagen), Joshua Hunt (PhD Copenhagen), James Brotherston (PhD Sheffield), Kaif Hilman (PhD Copenhagen), Thais Minet.

Undergraduate mentor for 4 students at Univ. Chicago all continued to PhD (1 Harvard, 3 MIT)

Research Management:

Responsible for hiring of > 50 PhD students and > 50 postdocs 07–

Board Member of the UCPH Board of Governors (Elected 20-23+24-)

Head of Section at UCPH-MATH: "Algebra and Geometry" 20-

Head of Section at UCPH-MATH: "Topology, Functional Analysis and Algebra" 17-19

Director of "DNRF Centre for Symmetry and Deformation" 10–19

Director of "KU Programme of Excellence: Symmetry and Deformation" 08–13

Editor of "Acta Mathematica" 14-

Editor of "Geometry and Topology" 08-

Editor of "Homology, Homotopy and Applications" 05–17

Editor of "New York Journal of Mathematics" 12–18

PI and manager on numerous grants (NSF personal grant, NSF Focused Research Group Grant, A.

P. Sloan Research Grant, Rømer Fellowship, etc)

Organizer: Weekly topology seminars Univ. Chicago 01-06, Univ. Copenhagen 06-

Organizer: Princeton/IAS seminar: "Group actions and cohomology" 00-01.

Organizer: Midwest Topology Seminar Conference Mar 02 and Apr 05.

Organizer: Special Session on Group Cohomology at AMS Meeting, Madison, Oct 02.

Organizer: Special Session on Homotopy Theory at AMS Meeting, Northwestern, Oct 04.

Organizer (04-06) & founder of "AllChicago" topology seminar (Joint UC-NU-UIC seminar)

Problem session moderator of "Homotopy theory and group actions", Banff Nov 05

Organizer: "Georgian Topology Week", Copenhagen, Sept 06

Organizer: "First Copenhagen Topology Conference", Copenhagen, Sept 06

Organizer: Workshop on "Finite groups and p-local finite groups", Copenhagen, July 07

Organizer: Workshop on "Homotopy theory and group actions", Copenhagen, Aug 07

Organizer: "Beyond p-compact groups" Workshop, Copenhagen, Jan 08

Organizer: "HGTTAG Workshop", Copenhagen, June 08

Organizer: "Homotopical Group Theory and Topological Algebraic Geometry", Bonn, June 08

Organizer: "Copenhagen Topology Conference 2010", Copenhagen, January 10

Organizer: "Homotopical approaches to group actions", Copenhagen, August 11

Organizer: "EMS/DMF Joint Math Weekend 2013" (scientific committee and section organizer), Aarhus, April 2013

Organizer: "Equivariant stable homotopy theory", Copenhagen, August, 2013.

Organizer: "Group actions and homotopy theory conference", Copenhagen, August 2013.

Organizer: "MSRI Spring 2014 topology semester: Introductory Workshop", MSRI, Jan 2014.

Organizer: "Stratifications and duality in modular representation theory", Copenhagen, March, 2017.

Organizer: "Masterclass: Tensor triangular geometry and equivariant stable homotopy theory", Copenhagen, March 2018.

Organizer: "SYM 10 Years Old Conference", Copenhagen, June 2019.

Organizer: "Workshop on classifying spaces of finite groups of Lie type", Copenhagen, July 2019.

Organizer: "Oberwolfach: Homotopy Theory", Oberwolfach, August 2019.

Organizer: "Higher representation theory", Masterclass Copenhagen, March 2023.

Organizer: "Oberwolfach: Homotopy Theory", Oberwolfach, August 2023.

Organizer: "Parametrized homotopy theory", Masterclass Copenhagen, Sept 2023.

Organizer: "Continuous K-theory, Dualizable and Rigid Categories", Masterclass Copenhagen, June 2024.

Organizer: "Rank conjectures in algebra and topology", Masterclass Copenhagen, June 2024.

List of Publications of Jesper Grodal: (see: www.math.ku.dk/~jg)

- 1. The transcendence degree of the mod p cohomology of finite Postnikov systems. In Stable and unstable homotopy (Toronto, ON, 1996), pages 111–130. Amer. Math. Soc., Providence, RI, 1998.
- 2. Serre's theorem and the Nil_l filtration of Lionel Schwartz. In Cohomological methods in homotopy theory (Bellaterra, 1998), pages 177–183. Progress in Math. 196, Birkhäuser Verlag, 2001.
- 3. Higher limits via subgroup complexes. Ann. of Math. (2) 155 (2002), no. 2, 405–457.

- 4. (with K. Andersen, T. Bauer, and E. Pedersen) A finite loop space not rationally equivalent to a compact Lie group. *Invent. Math* 157 (2004), no. 1, 1–10.
- 5. (with S. Smith) Propagating sharp group homology decompositions. *Adv. Math.* 200 (2006), no. 2, 525–538.
- 6. (with C. Broto, N. Castellana, R. Levi, and B. Oliver) Subgroup families controlling fusion systems and p-local finite groups. *Proc. London Math. Soc.* (3) 91 (2005) no. 2, 325-354.
- 7. (with C. Broto, N. Castellana, R. Levi, and B. Oliver) Extensions of *p*-local finite groups. Trans. Amer. Math. Soc. 359 (2007), 3791-3858.
- 8. (with K. Andersen, J. Møller, and A. Viruel) The classification of p-compact groups for p odd. Ann. of Math. (2) 167 (2008), no. 1, 95–210.
- 9. (with K. Andersen) Automorphisms of p-compact groups and their root data. Geometry & Topology 12 (2008), 1427–1460.
- 10. (with K. Andersen) The Steenrod problem of realizing polynomial cohomology rings. *J. Topology* 1 (2008), 747–760.
- 11. (with K. Andersen) The classification of 2-compact groups. J. Amer. Math. Soc. 22 (2009), 387–436.
- 12. The classification of p-compact groups and homotopical group theory. Proc. Intl. Congress of Mathematicians 2010 (Hyderabad, 2010), 974–1001.
- 13. (with D. Benson and E. Henke) Group cohomology and control of *p*-fusion. *Invent. Math.* 197 (2014), 491–507.
- 14. (with J. Carlson, N. Mazza, D. Nakano) Torsion free endotrivial modules for finite groups of Lie type. *Pacific J. Math.* 317 (2022), 239–274.
- 15. Endotrivial modules for finite groups via homotopy theory. J. Amer. Math. Soc. 36 (2023), 177-250.
- 16. (with A. Lahtinen) String topology of finite groups of Lie type. 80 pages. arXiv:2003.07852.

Manuscripts and in prepraration:

- 17. The Burnside ring of the p-completed classifying space of a finite group.
- 18. (with A. Adem) Homotopical group actions and periodicity.
- 19. (with J. H. Smith) Classification of homotopy G-actions on spheres.
- 20. (with B. Oliver) Fundamental groups of p-local finite groups.
- 21. Schur multipliers and the gluing conjecture for finite groups of Lie type.
- 22. (with G. Robinson) On a characteristic subgroup related to endotrivial modules.
- 23. (with J. Carlson, N. Mazza, and D. Nakano) Classification of endotrivial modules for finite groups of Lie type.
- 24. (with T. Barthel and J. Hunt) Endotrivial modules for finite groups via higher algebra.