materialstoday
Connecting the materials community

ELSEVIER

Trends in Composite Materials:
A Publishing Perspective

Presented By Dr Stewart Bland

Date July 2015

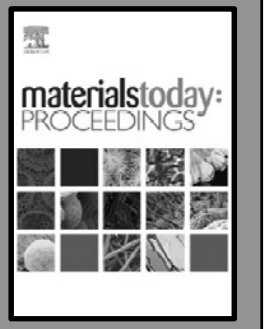
Elsevier materials journals group: The *Materials Today* team

Dr Stewart Bland
Editor, *Materials Today* journal & website
Senior Publisher, Materials Journals

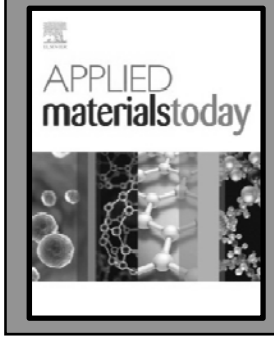
materialstoday
Connecting the materials community

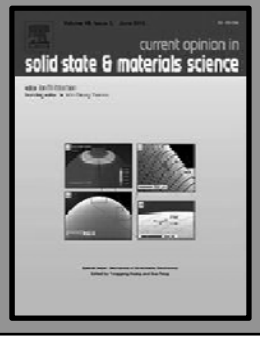
Elsevier materials journals group: The *Materials Today* team

materialstoday.com



Dr Stewart Bland
Editor, *Materials Today* journal & website
Senior Publisher, Materials Journals





materialstoday
Connecting the materials community

Elsevier materials journals group: The *Materials Today* team

materialstoday
Connecting the materials community

Outline

- **Introduction**
- **Elsevier and the *Materials Today* Team**
- **Journal Publishing and the Relevance to Industry**
- **Trends in Composite Publishing**

Elsevier

For over 135 years, Elsevier has been helping professionals advance knowledge by expanding the body of information, and enabling it to yield positive, measurable results.

Elsevier is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals.

Elsevier

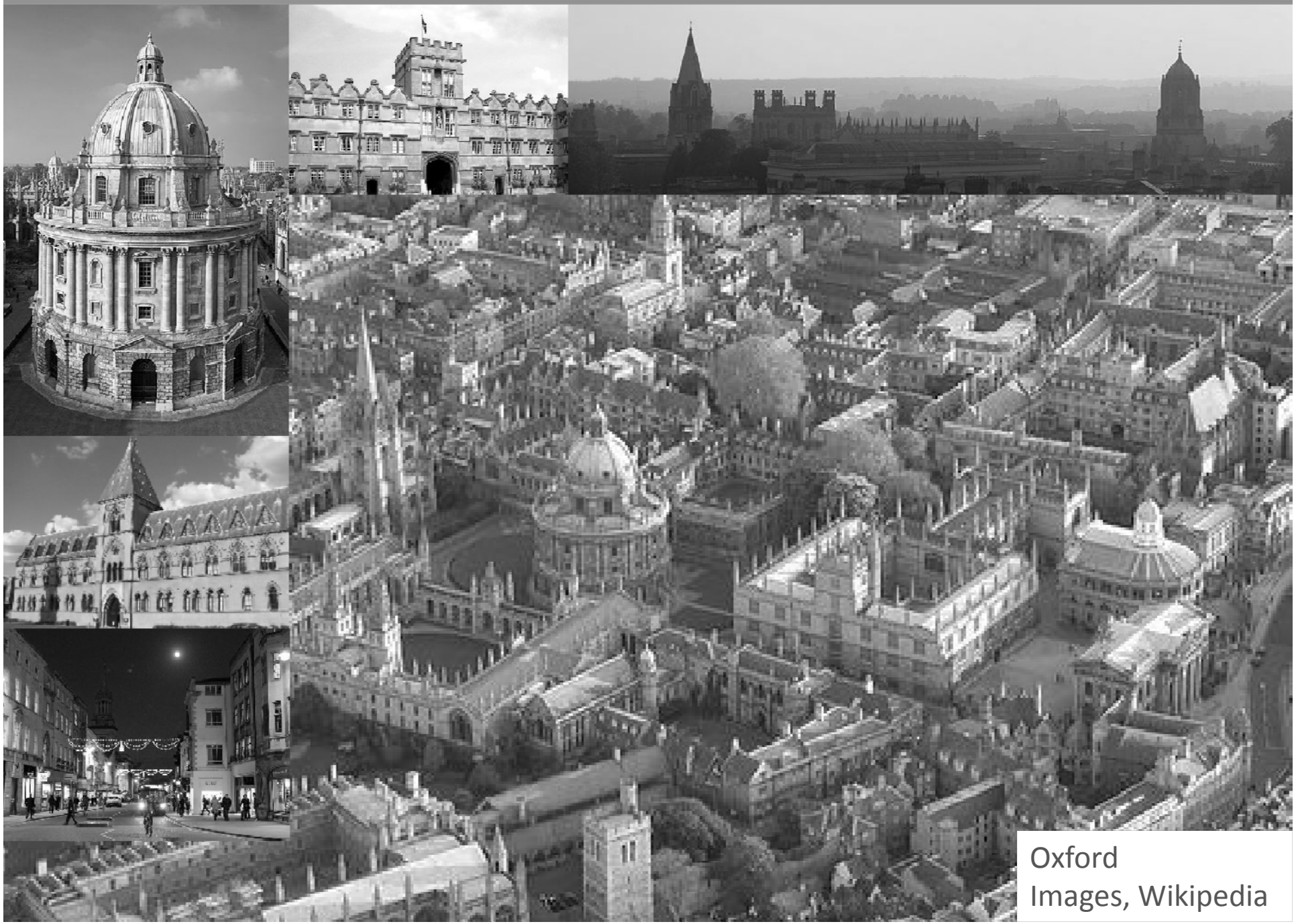
Elsevier provides web-based, digital solutions — among them ScienceDirect, Scopus, Elsevier Research Intelligence and ClinicalKey.

Elsevier publishes over 2,500 journals, including *The Lancet*, *Cell* and *Materials Today*, and more than 33,000 book titles, including a number of iconic reference works.

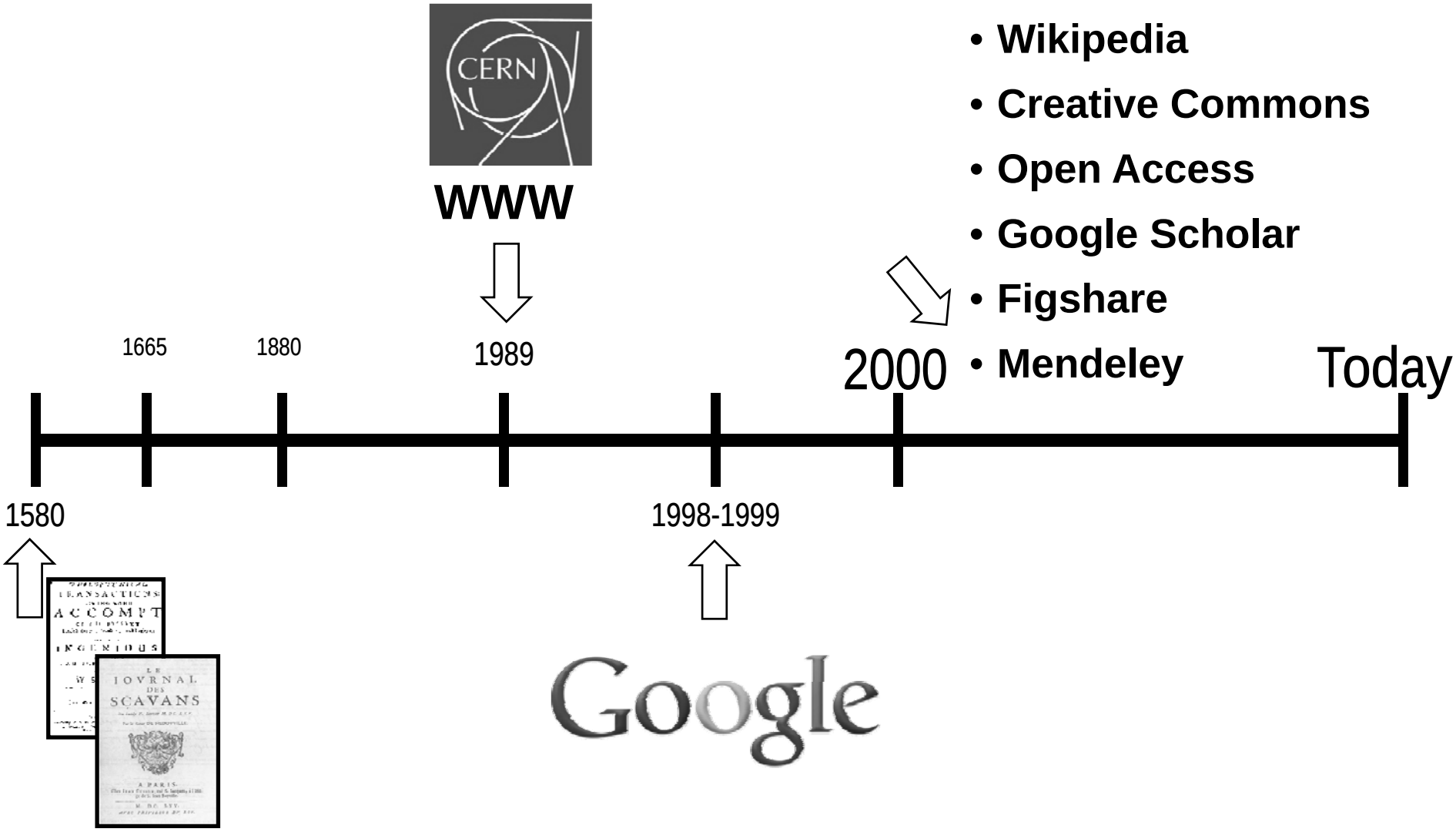
Elsevier is part of RELX Group plc, a world-leading provider of information solutions for professional customers across industries.

Elsevier

materialstoday
Connecting the materials community



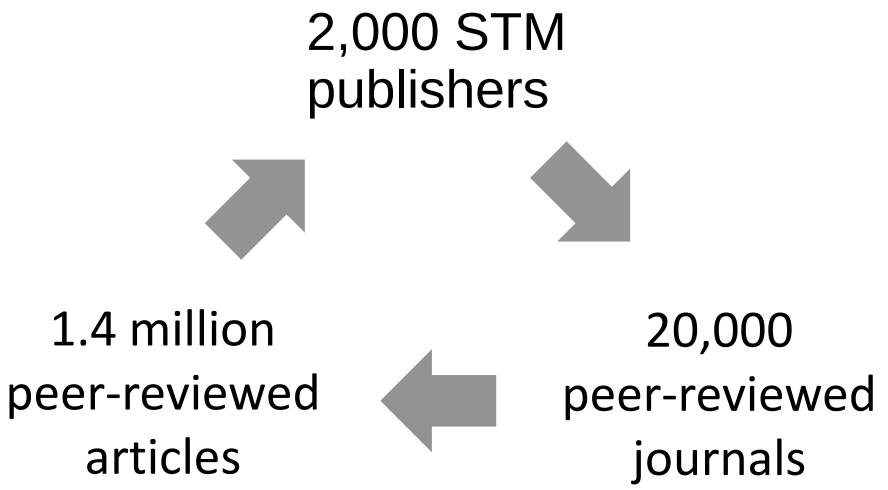
Oxford
Images, Wikipedia



- **PubMed Central**
- **Wikipedia**
- **Creative Commons**
- **Open Access**
- **Google Scholar**
- **Figshare**
- **Mendeley**

Scholarly publishing today

Scientific, technical and medical (STM) publishing



ELSEVIER

materialstoday

Connecting the materials community

The publisher's role

Registration

- **The timestamp to officially note who submitted scientific results first**

Certification

- **Perform peer-review to ensure the validity and integrity of submissions**

Dissemination

- **Provide a medium for discoveries and findings to be shared**

Preservation

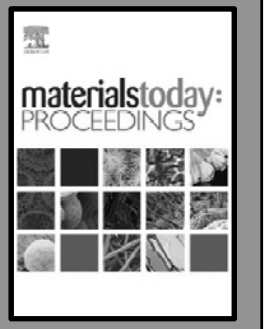
- **Preserving the minutes and record of science for posterity**

Use

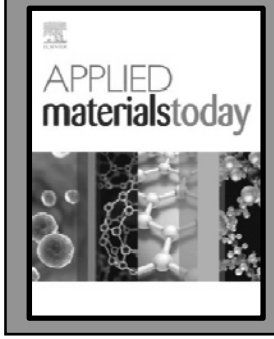
- **An enriched paper including multimedia tools**

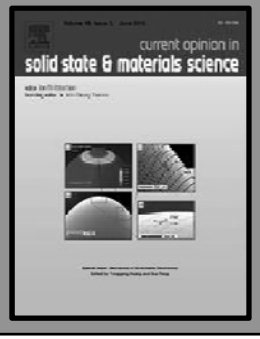
Elsevier materials journals group: The *Materials Today* team

materialstoday.com



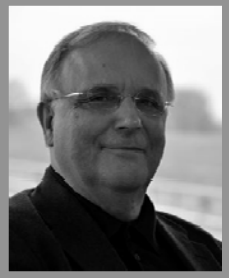
Dr Stewart Bland
Editor, *Materials Today* journal & website
Senior Publisher, Materials Journals





materialstoday
Connecting the materials community

Elsevier materials journals group: The *Materials Today* team




Elsevier materials journals group: The *Materials Today* team

Elsevier's materials contributors

- **250 Editors**
- **2000 Editorial Board Members**
- **32000 Reviewers**
- **44000 Corresponding Authors**

materialstoday
Connecting the materials community

Elsevier materials science journals group: The *Materials Today* team







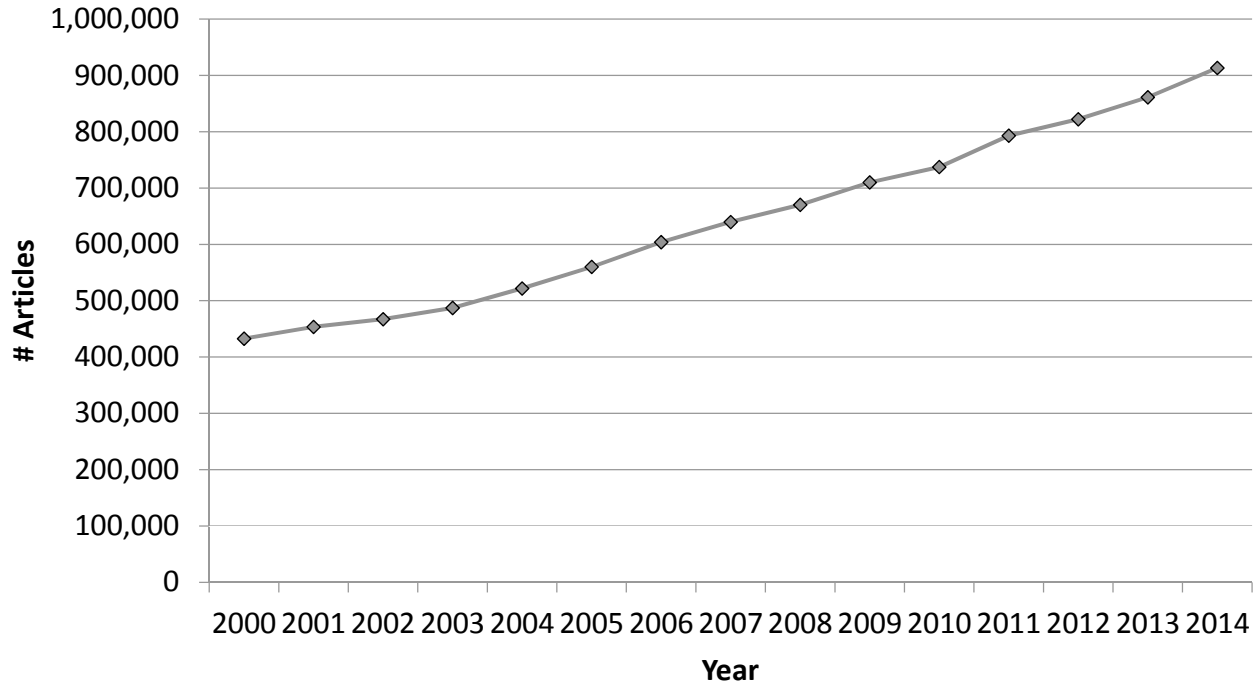
Elsevier's global contributors

- **7,000 Editors**
- **70,000 Editorial Board Members**
- **300,000+ Reviewers**
- **600,000+ Corresponding Authors**

materialstoday
Connecting the materials community

Science journal publishing

- **Scopus Data**
- **Global journal (only) publishing output**
- **75% growth from 2004 -> 2014**



Why materials journal publishing?

The Materials Genome Initiative

"Materials Genome Initiative. The invention of silicon circuits and lithium-ion batteries made computers and iPods and iPads possible –- but it took years to get those technologies from the drawing board to the marketplace. We can do it faster."

President Barack Obama,

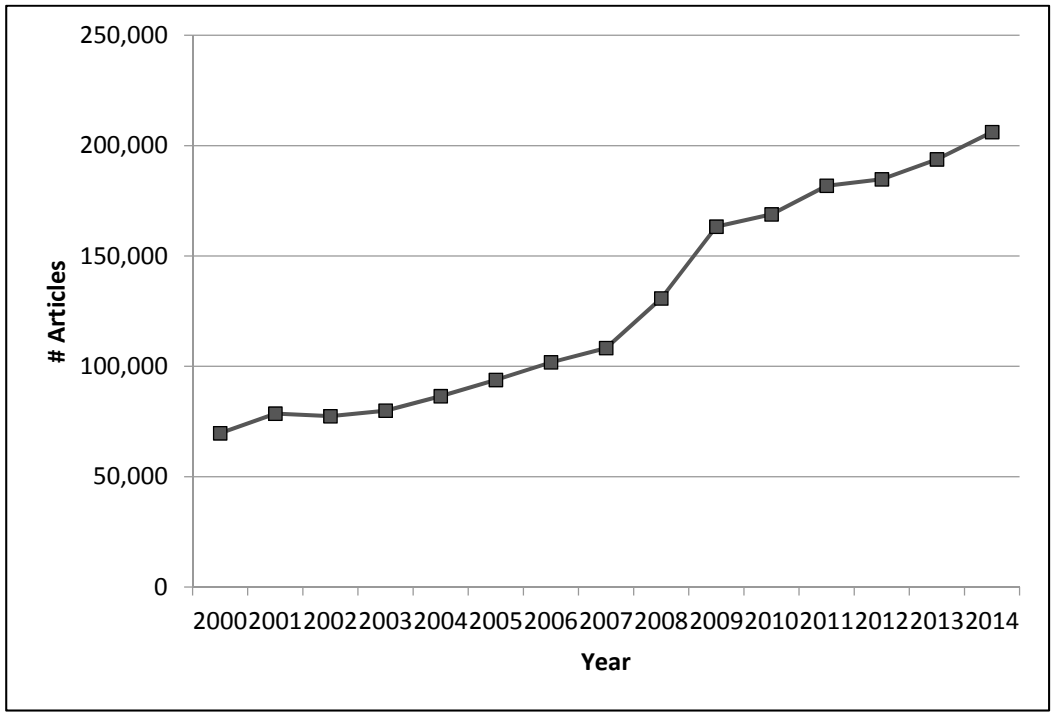
2011, Carnegie Mellon University

https://www.whitehouse.gov/the-press-office/2011/06/24/remarks-president-carnegie-mellon-universitys-national-robotics-engineer

Materials journal publishing

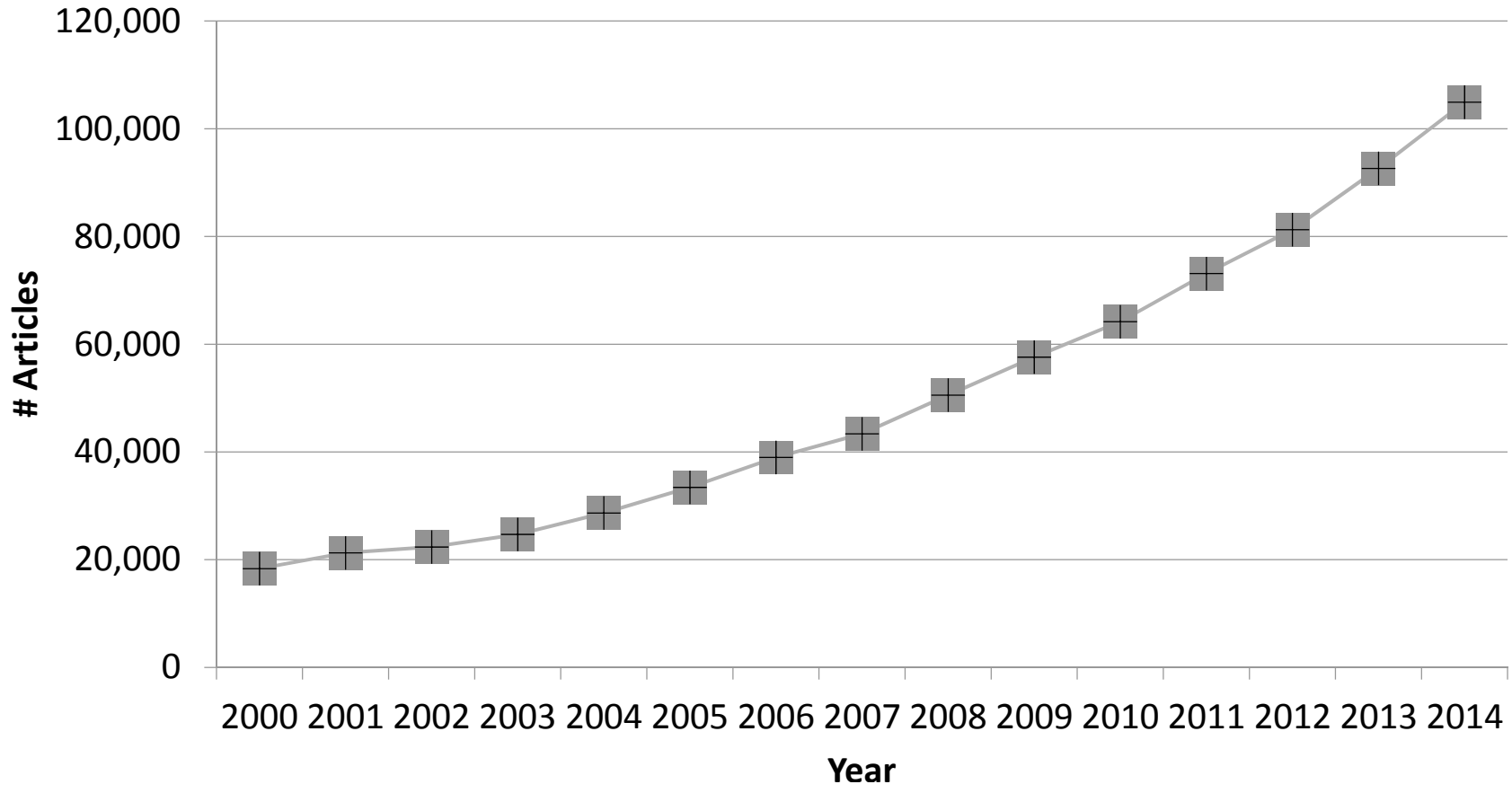
- **140% growth from 2004 -> 2014**

Country	Increase	2014 articles
China	360%	64470
USA	112%	28947
India	260%	12536
Japan	15%	12279
Germany	76%	11869



Composites articles

- **Articles relating to “composite*”**



materialstoday
Connecting the materials community

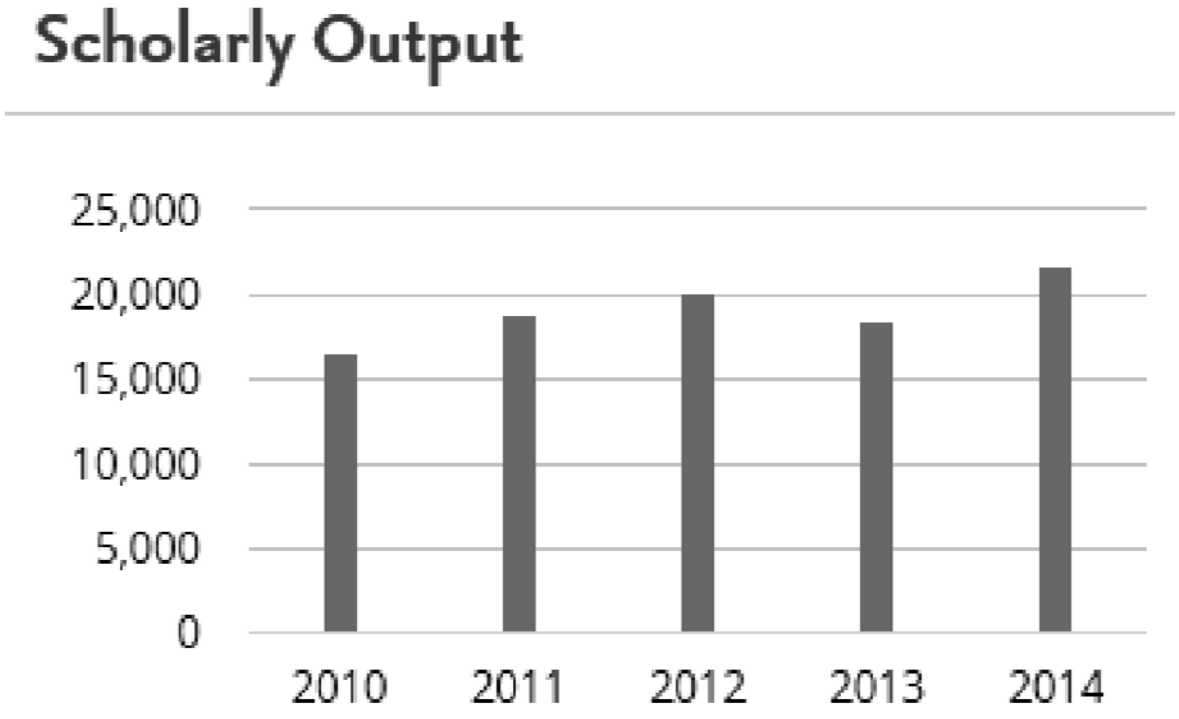
Materials journal publishing

- **140% growth from 2004 -> 2014**

Country	All materials	Composite*
China	360%	601%
USA	112%	119%
India	260%	504%
Japan	15%	50%
Germany	76%	148%

Composites articles

- **SciVal 2010-2014**
- **Ceramics and composites**



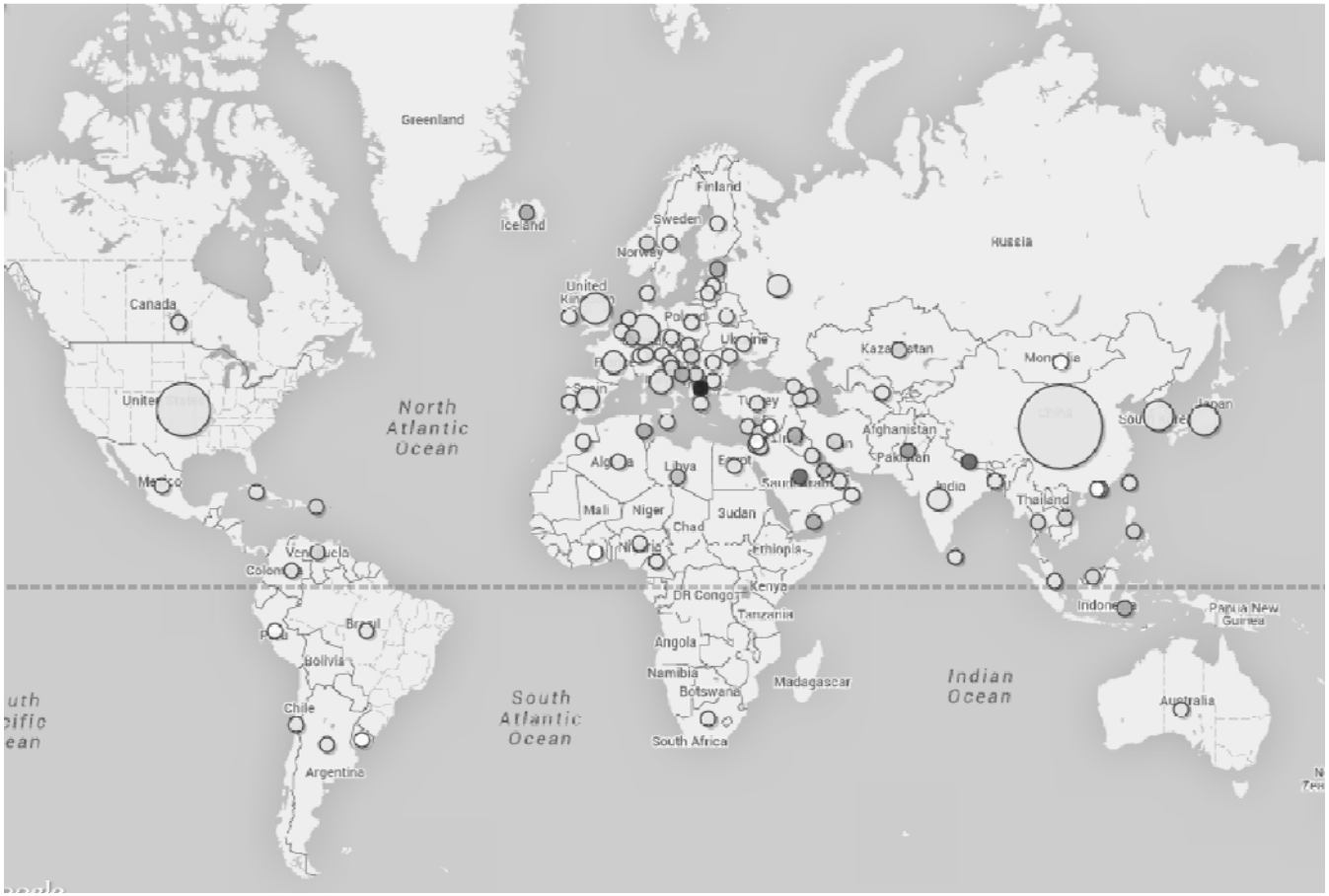
Composites journals

Composites Part B-Engineering
Composite Structures
Composites Science And Technology
Journal Of Composite Materials
Polymer Composites
Composites Part A-Applied Science And Manufacturing
Journal Of Reinforced Plastics And Composites
Cement & Concrete Composites
Polymers & Polymer Composites Journal
Journal Of Thermoplastic Composite Materials

Composites Science And Technology
Cement & Concrete Composites
Composite Structures
Composites Part A-Applied Science And Manufacturing
Composites Part B-Engineering
Journal Of Composites For Construction
Polymer Composites
Journal Of Reinforced Plastics And Composites
Journal Of Thermoplastic Composite Materials
Journal Of Sandwich Structures & Materials

Composites articles

- **SciVal 2010-2014**
- **Ceramics and composites**

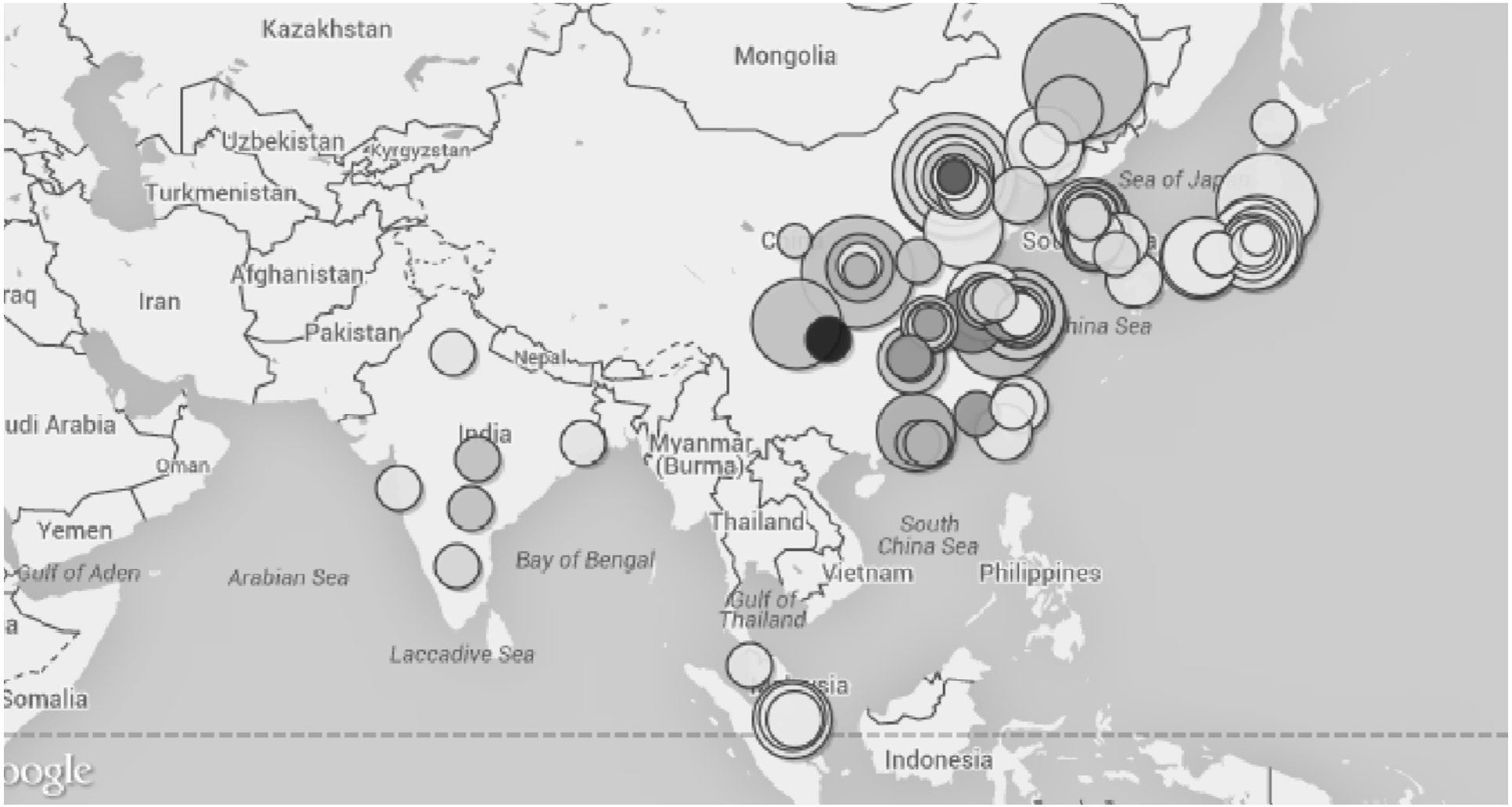


materialstoday
Connecting the materials community

decline / growth

materialstoday
Connecting the materials community

Composites articles



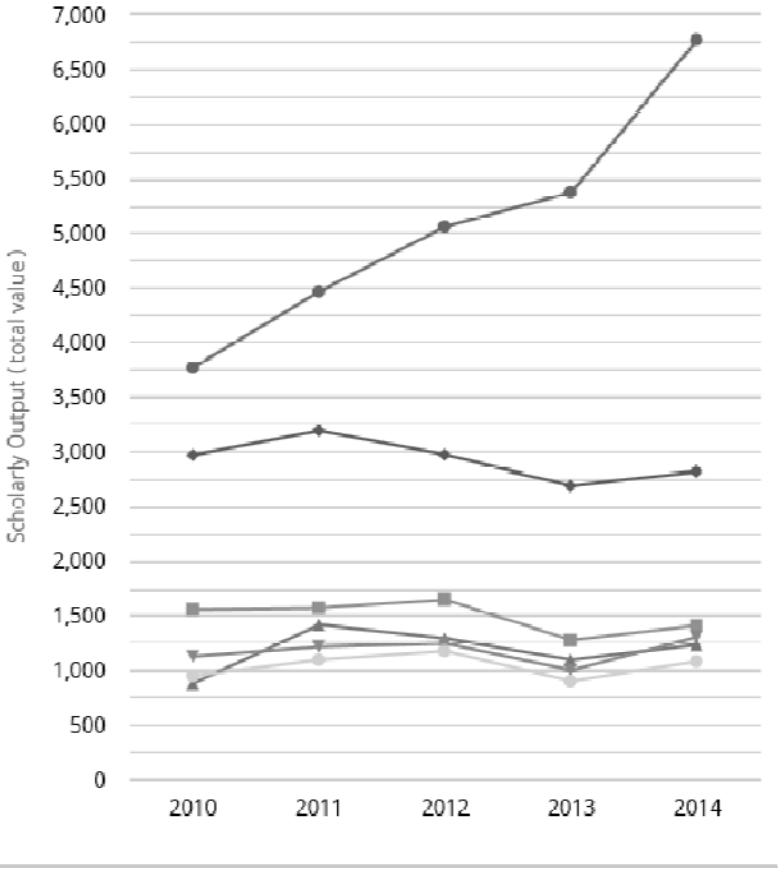
decline / growth

materialstoday
Connecting the materials community

Composites articles

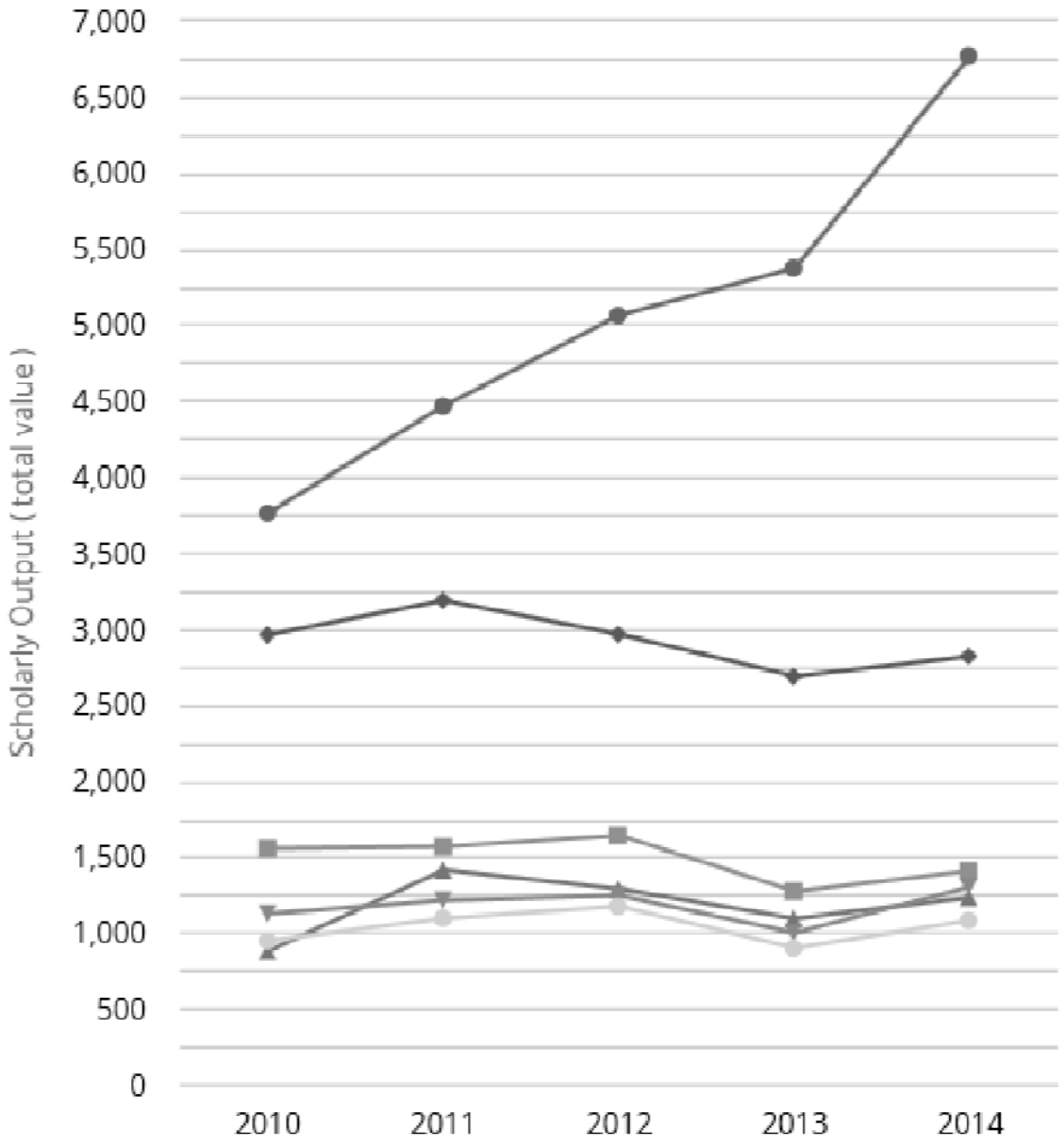
- **SciVal 2010-2014**
- **Ceramics and composites**

1.	●	China
2	◆	United States
3.	■	Japan
4.	▲	South Korea
5.	▼	Germany
6.	●	United Kingdom
7.		India
8.		France
9		Russian Federation
10.		Spain
11.		Italy
12.		Canada
13.		Australia
14.		Iran
15.		Taiwan
16.		Turkey



materialstoday
Connecting the materials community

1.	●	China
2.	◆	United States
3.	■	Japan
4.	▲	South Korea
5.	▼	Germany
6.	●	United Kingdom
7.		India
8.		France
9.		Russian Federation
10.		Spain
11.		Italy
12.		Canada
13.		Australia
14.		Iran
15.		Taiwan
16.		Turkey



Composites articles – most prolific Institutes

- **SciVal 2010-2014**
- **Ceramics and composites**

	Institution	Scholarly Output
1.	Chinese Academy of Sciences	923
2.	Tsinghua University	912
3.	Harbin Institute of Technology	890
4.	Northwestern Polytechnical University Xian	806
5.	CSIC	760
6.	Tohoku University	695
7.	Zhejiang University	685
8.	RAS	668
9.	Peking University	650
10.	Shanghai Jiaotong University	627

Composites articles – most prolific Industry collaborators

- **SciVal 2010-2014**
- **Ceramics and composites**

Institution	Scholarly Output	Academic-Corpora...
University of Tokyo	604	33
Imperial College London	502	27
University of Oxford	317	27
Tohoku University	695	26
University of Manchester	375	26
Kyoto University	483	24
University of Cambridge	379	24
University of Bristol	324	22
Massachusetts Institute of Technology	337	20
Northwestern University	307	20

materialstoday
Connecting the materials community

Composites articles – most prolific Corporations

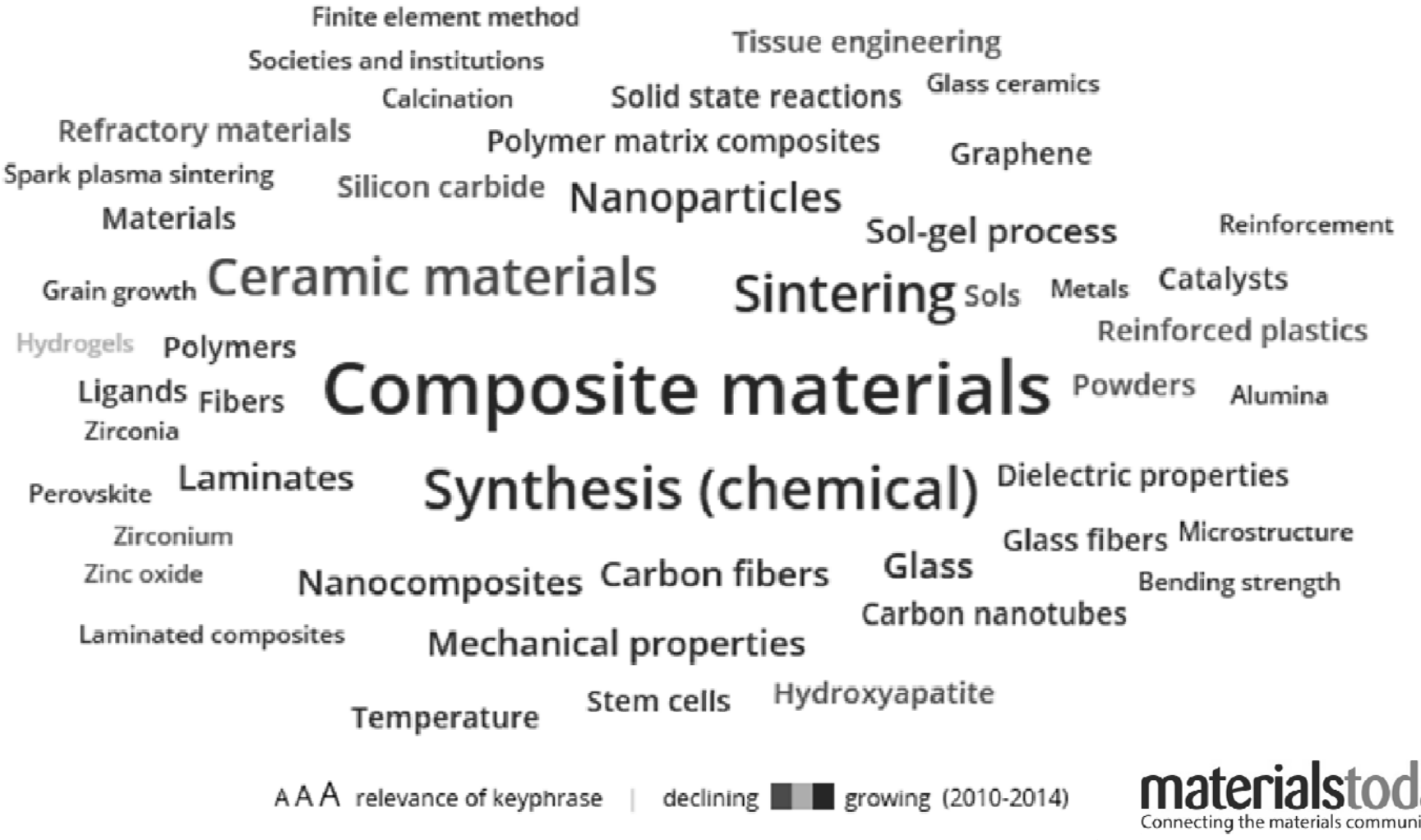
- **SciVal 2010-2014**
- **Ceramics and composites**

	Institution	Scholarly Output
1.	Airbus Group	97
2.	Corning Incorporated	86
3.	Northwest Institute for Nonferrous Metal Research	69
4.	Samsung	68
5.	Toyota Motor	60
6.	Boeing	58
7.	General Electric	58
8.	Rolls-Royce United Kingdom	58
9.	General Motors	56
10.	General Research Institute for Non-ferrous Metals China	51

materialstoday
Connecting the materials community

Composites articles

- **SciVal 2010-2014**
- **Ceramics and composites**



materialstoday
Connecting the materials community

Composites articles

- **Top 10 downloads from *Comp Sci Tech* in 2014**

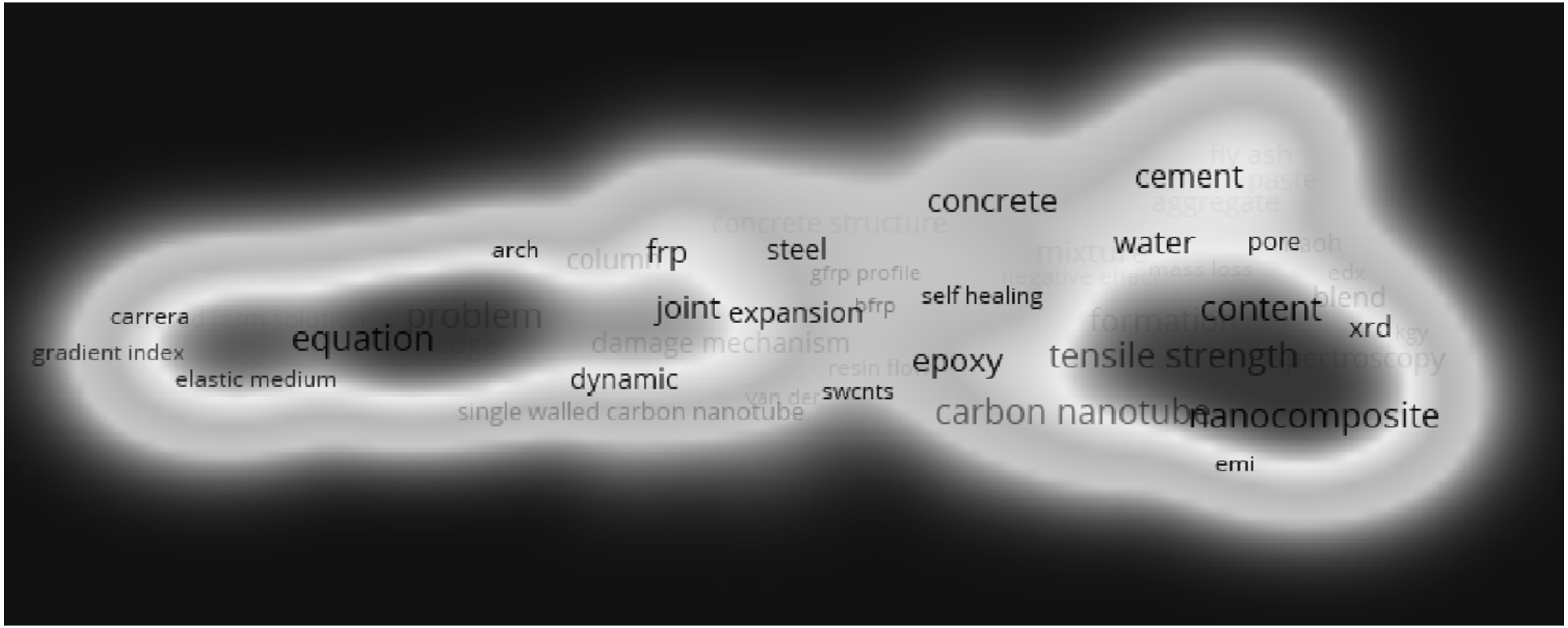
• A review on polymer nanofibers by electrospinning and their applications in nanocomposites
• Advances in the science and technology of carbon nanotubes and their composites: a review
• Biomedical applications of polymer-composite materials: a review
• Natural fibres: can they replace glass in fibre reinforced plastics?
• The mechanics of graphene nanocomposites: A review
• A review and analysis of electrical percolation in carbon nanotube polymer composites
• Natural fibres as reinforcement in polylactic acid (PLA) composites
• Carbon nanotube (CNT)-based composites as electrode material for rechargeable Li-ion batteries: A review
• Carbon fiber surfaces and composite interphases
• Electrospinning of polymer nanofibers: Effects on oriented morphology, structures and tensile properties

Composites articles

- **Top 10 most cited articles containing a “composite” title**

• Polymer-fullerene composite solar cells
• Small but strong: A review of the mechanical properties of carbon nanotube-polymer composites
• Multiferroic magnetoelectric composites: Historical perspective, status, and future directions
• Biodegradable and bioactive porous polymer/inorganic composite scaffolds for bone tissue engineering
• Graphene-based composites
• Carbon nanotube-polymer composites: Chemistry, processing, mechanical and electrical properties
• P25-graphene composite as a high performance photocatalyst
• Graphene/polyaniline nanofiber composites as supercapacitor electrodes
• Supercapacitors based on flexible graphene/polyaniline nanofiber composite films
• Recent advances in graphene based polymer composites

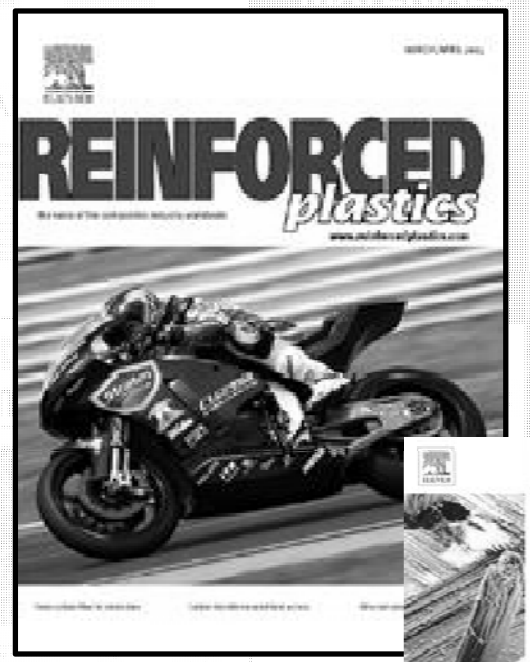
Composites articles



CWTS/Elsevier Journal Mapping. Term map for top five composites journals.

materialstoday
Connecting the materials community

Where to find out more? Journals and magazines



For more than 50 years *Reinforced Plastics* magazine has been providing designers, manufacturers and end-users of composite products impartial and informed information on the global composites industry.

Reinforced Plastics is available free of charge.

materialstoday
Connecting the materials community

Where to find out more? Websites and Conferences

NEWS — News

COMMENT — Comment

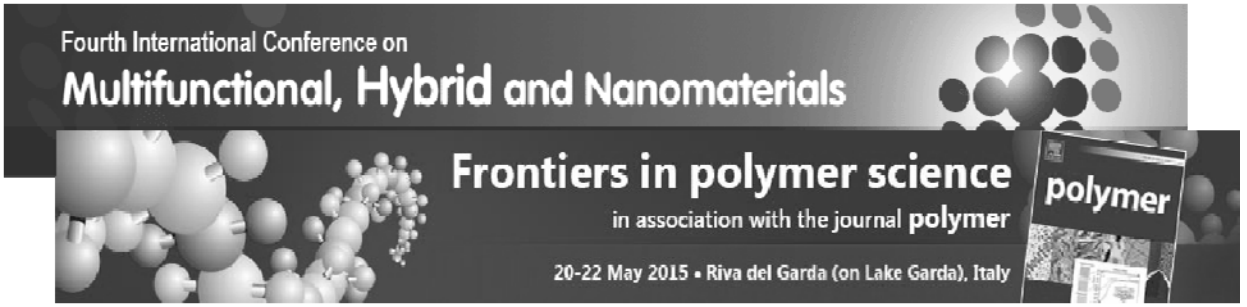
PODCAST — Interviews

WEBINAR — Educational webinars

EVENTS — Event listings

JOBS — Jobs board

FEATURE — Articles & Whitepapers



materialstoday
Connecting the materials community

Summary

- **Journals can indicate future Industry trends**

- **Resources to track these trends are available – but you can take a look at the literature**

- **Terms of interest include:**

  Advanced processing technologies

  Testing technologies

  Nano-composites

  Energy and biomedical applications

- **Composites is a rapidly growing area - faster than many other areas in physical sciences – and many other areas of materials science**

- **China is at the leader in this growth**

Summary

Thank you for listening!

Visit us at materialstoday.com

materialstoday
Connecting the materials community