

Introducing Citation Topics

A new document-level classification schema for InCites

Citation Topics are clusters of documents brought together through their citation relationships. The clustering algorithm was developed by CWTS in Leiden and implemented under the stewardship of our ISI team. The output is a three-tier hierarchy of named topics that allow users to select their own level of detail in any analysis.

Topics cover all document types in the Web of Science Core Collection from 1980 onwards. New documents are added to existing topics monthly (based on their cited references). We perform a full update each year. This will not affect existing topics but will may create new micro-topics and reassign some documents to different micro-topics. This ensures our Citation Topics reflect changes in the underlying literature.

Clustering

Documents are clustered based on their cited and citing paper relationships (including citations to pre-1980 documents). The algorithm includes rules to ensure that a high proportion of documents are clustered.

Refinement

Small cluster are iteratively combined until they meet the requirements for a micro-topic. Enforcement ensures topics are firmly demarcated. Reinforcement brings together clusters that share the same parent.

~5% articles and reviews remain unassigned to a topic

Micro-topics (2444)

Coherent clusters of documents – a document can belong to only a single micro-topic

Meso-topics (326)

Micro-topics are clustered into larger meso-topics using similar rules.

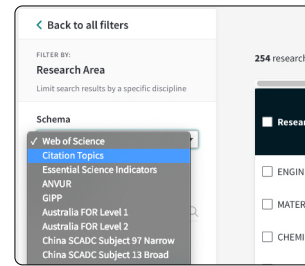
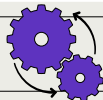
Macro-topics (10)

Meso-topics are brought together into broad macro-topics.

Macro- and meso-topics were labelled manually based on content. Micro-topics were algorithmically labelled with the most significant author keyword.

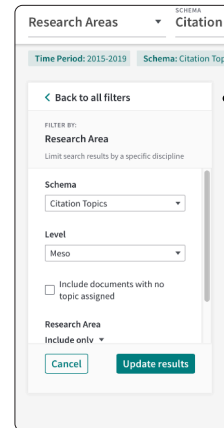
Updating

Each month, new documents are added to existing topics based on their cited references. A full clustering update is carried out yearly.



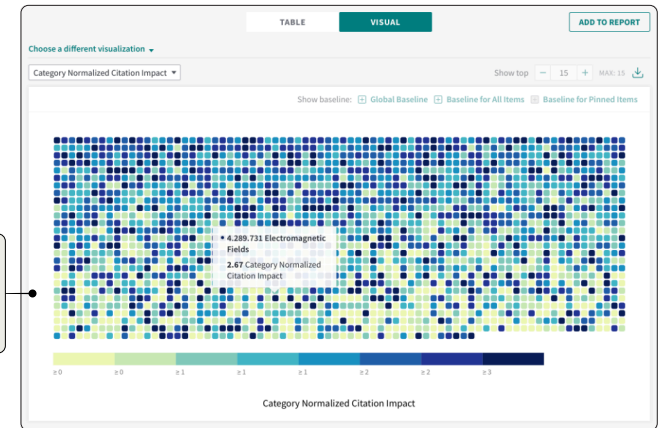
Using Citation Topics

The Citation Topics schema can be selected as a filter in any entity or directly from the search bar in the Research Areas entity. Choosing the schema allows users to select a level – *macro* for the ten broad topics, *meso* for the 326 intermediate topics, and *micro* for the 2444 granular topics. All indicators and visualizations (plus a new heatmap) are available. Indicators that are normalized using the WoS subject category (such as category normalized citation impact – CNCI) will use the topic (at each level) as their category.



Filter
the Citation Topics schema and its level option is available in all entities. Documents with no topic assigned are not displayed by default

Visualization
the new heat-map lets users quickly identify topics of interest at any Citation Topic level



Search directly
select both the schema and level from the search bar (in the research area entity)

Explore
add a topic to see its associated child topics in the analysis

Research Area	Rank	Web of Science Documents	Times Cited	% Documents Cited	Category Normalized Citation Impact
5.193 Thermoelectric Materials	1	219	5,248	92.24%	2.47
5.38 Optical Electronics & Engineering	2	107	1,109	75.7%	2.7
5.31 Silicon Systems	3	109	1,092	79.82%	1.51
5.310 Resistive Switching	4	79	1,072	89.87%	1.47
5.250 Imaging & Tomography	5	128	961	67.97%	1.47
5.77 Applied Physics	6	42	518	97.62%	2.25
5.98 Geometrical Optics	7	80	463	57.5%	1.59
5.56 Quantum Mechanics	8	17	352	82.35%	3.73
5.33 Condensed Matter Physics	9	28	341	92.86%	2.32

Data table
features all available indicators and any topic can be pinned to the top or refocused