

We are pleased to announce the launch of **SocialCitnet (Beta)**, an online tool that introduces a new approach to *search patent databases* and to *build and analyze technology landscapes* using patent citations.

With a single patent number as input, SocialCitnet extracts citation information from patent databases maintained by the USPTO (US patents) and EPO (worldwide patents) to construct the patent's citation

Build your patent citation network

Choose Network
 USPTO EPO

Enter Patent No.

e.g. 7348746

Enter Depth

SUBMIT



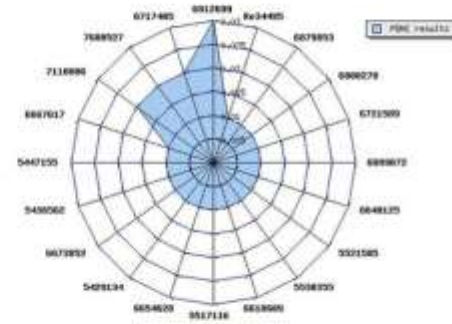
The tool goes on to compute three different indices for each patent in the network. Based on these indices, the patents are ranked and the most important patents are identified.

Searching more efficiently with SocialCitnet

www.socialcitnet.com

With SocialCitnet, you can:

1. Search faster and more efficiently
2. Quickly build technology landscapes
3. Identify core inventions



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SocialCitnet Beta is free for **20 days** and up to **20 searches**.

We are eager for you to try it out and provide us feedback!

Searching for fin based cooling or heat transfer mechanisms in transformers

Regular keyword based search

Approximately **213** results found in the Worldwide database for:

transformer AND (cool OR (heat AND (transfer OR dissipate OR evaporate))) AND (fins OR sink OR pipe) in the title or abstract

Too many patents, difficult to narrow down to relevant patents

Keyword + Classification search

Approximately **87** results found in the Worldwide database for:

transformer AND (cool OR (heat AND (transfer OR dissipate OR evaporate))) AND (fins OR sink OR pipe) in the title or abstract AND H01F27 or F28F as the IPC classification

Still too many patents, difficult to narrow down to relevant patents, and we may have already lost some relevant patents

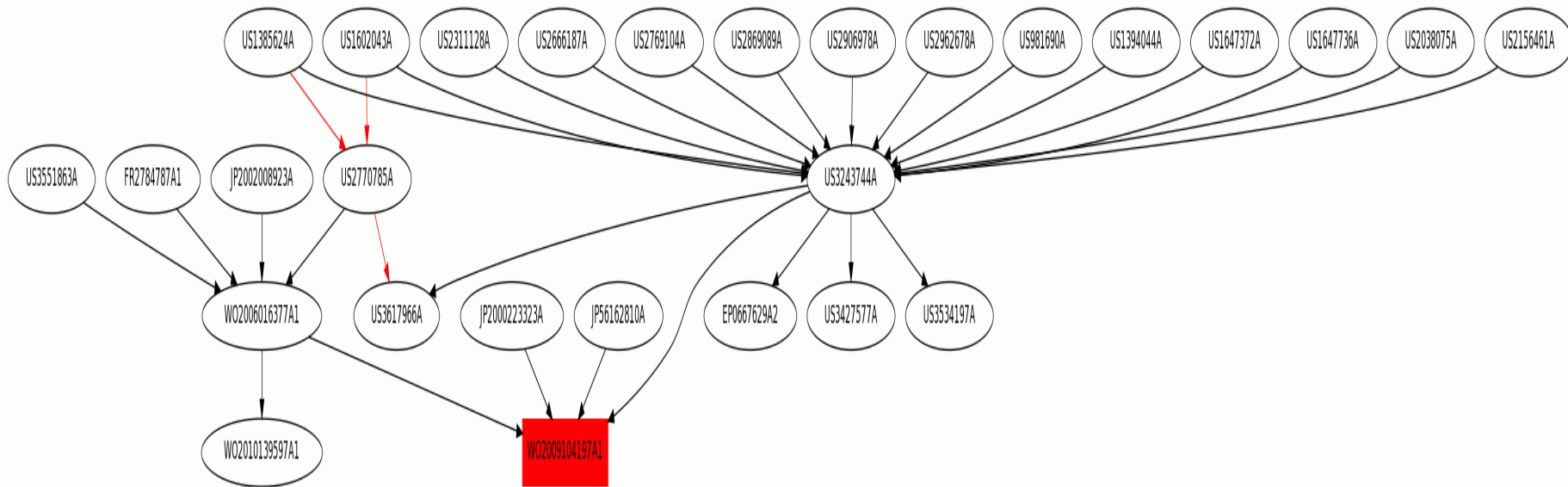
Starting with one relevant patent - WO2009104197 (A1)

- Also published as: EP2115753 (A1)

Abstract of WO 2009104197 (A1)

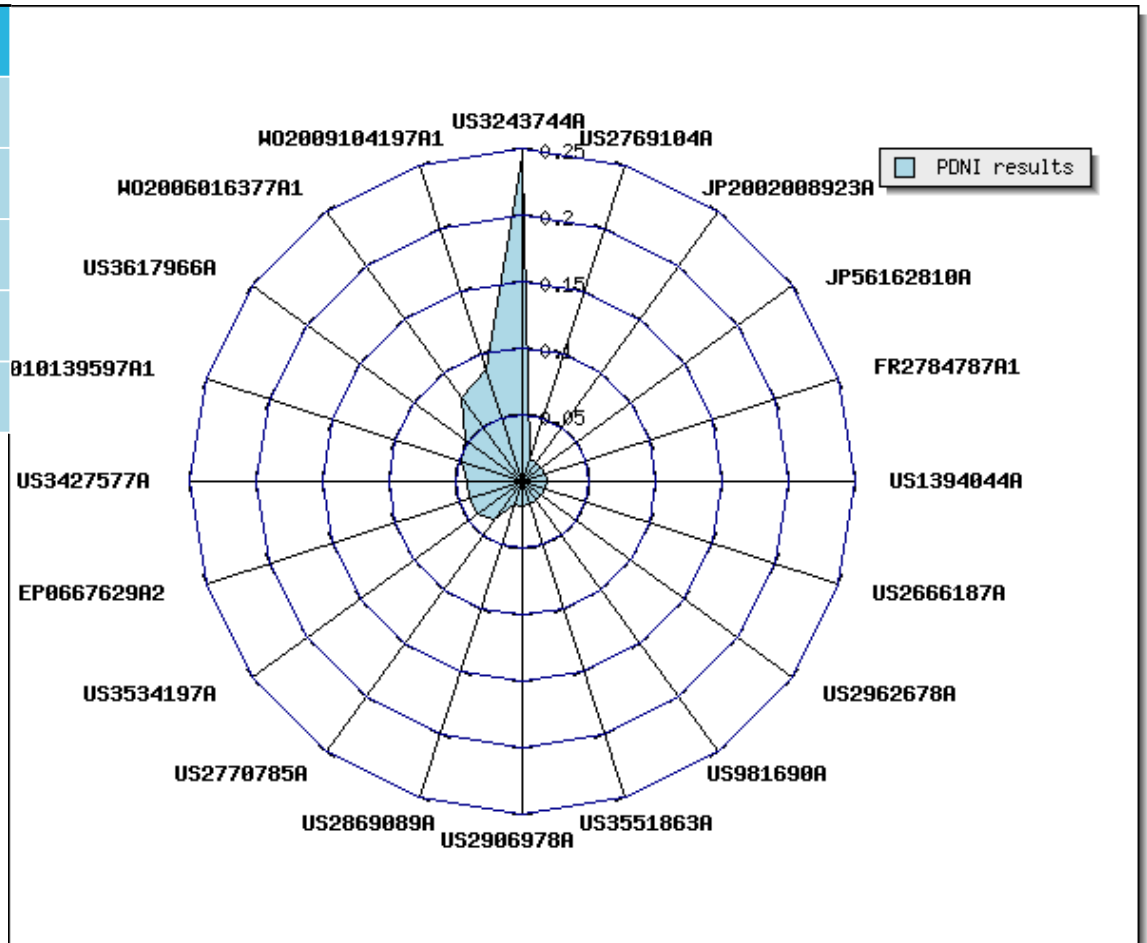
An compact dry transformer (1A) comprising a magnetic material core (2) and a coil assembly (3) assembled onto the core. The core comprises **heat dissipating covers (4) with cooling fins (5)** snug fitted over the core. The coil assembly is mounted on the core over a heat dissipating shifted inner jacket (9) made of non-magnetic material in close contact with the inner jacket. **At least one first heat pipe (11) provided with cooling fins is located between the core and inner jacket** in close contact therewith. The coil assembly further comprises a **heat dissipating shifted outer jacket (13)** made of non-magnetic material snug fitted over the high voltage winding. **At least one second heat pipe (15) protruding out of bushings provided with cooling fins is located against the outer jacket** in close contact therewith.

Constructing the citation network of WO2009104197 (A1) using SocialCitnet



Analyzing the citation network - Patents with high PDNI

Patent	PDNI
US3243744A	0.244
WO2009104197A1	0.0893
WO2006016377A1	0.0774
US3617966A	0.0536
WO2010139597A1	0.0476



US3243744A and US 3617966A are old patents, but still significant

The interesting ones are the relatively recent patents [WO2006016377A1](#) and [WO2010139597A1](#)

WO2006016377A1

Also published as:

US2007247266 (A1)

US7369024 (B2)

JP2008510297 (T)

EP1787304 (A1)

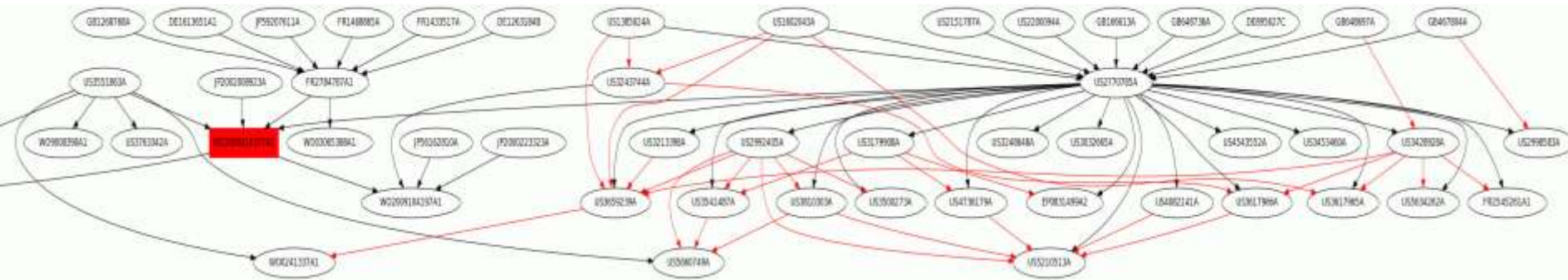
CN101015026 (A)

Abstract of **WO 2006016377 (A1)**

Compact dry transformer (1A) consisting of a magnetic material core (2) provided with a **first heat sink consisting of covers (10)** having cooling fins (11) on the outer surface thereof. The transformer also consists of a coil assembly (3, 4) provided with a **second heat sink consisting of enclosures (12) having cooling fins (14)** on the outer surface thereof. The **second heat sink further consists of jackets (15) with heat pipes (17)** containing a **thermic fluid** having low boiling point at vacuum such as water. The heat pipes consist of evaporator portions and condenser portions having cooling fins (21) on the outer surface thereof. Due to the heat sinks heat dissipation efficiency of the transformer is improved.

Constructing the citation network of WO2006016377A1 – Depth 2

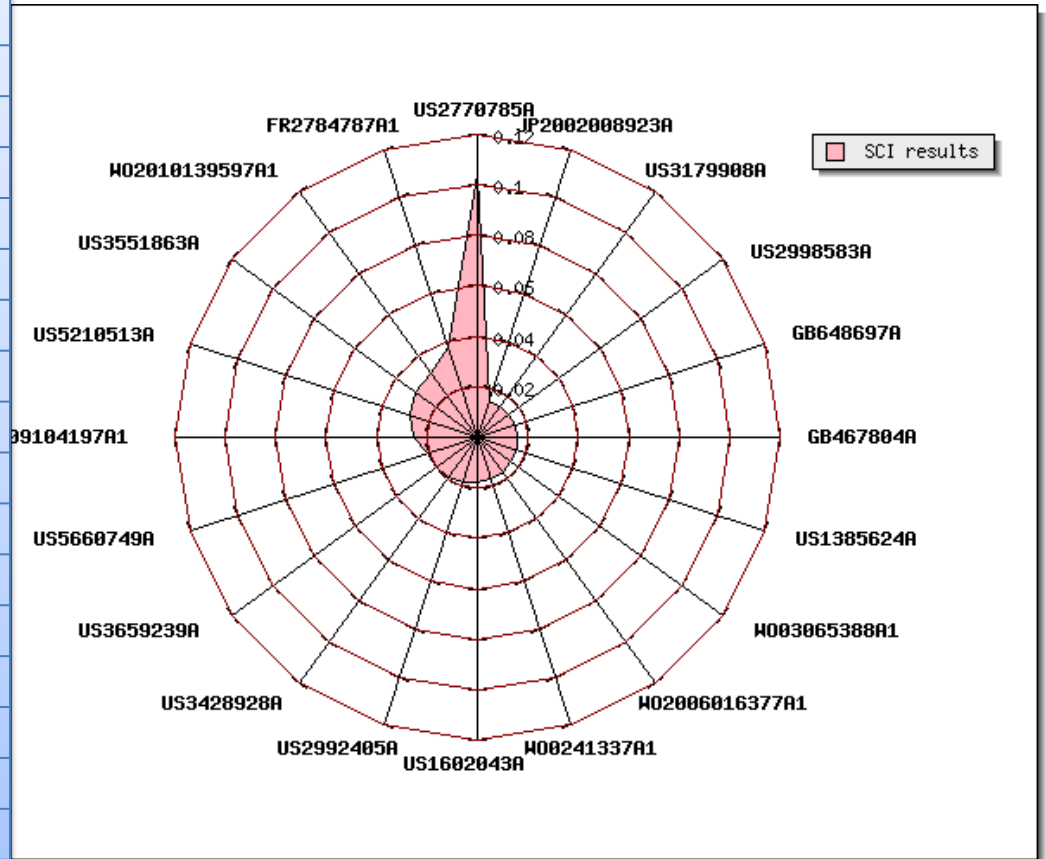
A portion of the citation network



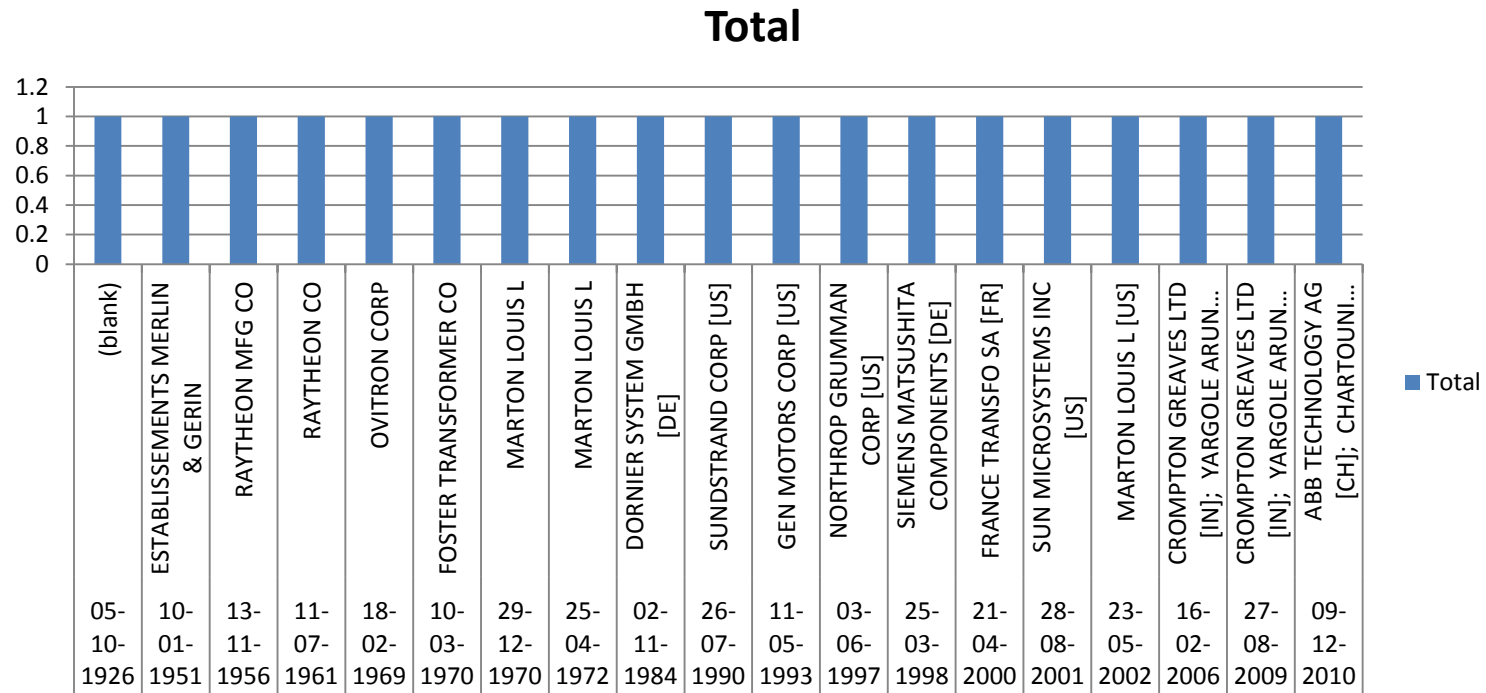
Which ones are the
most relevant
patents in there?

Patents with maximum Social Citation Index

Patent	SCI	Assignee
US2770785A	0.1041	RAYTHEON
FR2784787A1	0.0373	FRANCE TRANSFO SA
WO2010139597A1	0.0312	ABB
US3551863A	0.0301	MARTON LOUIS L
US5210513A	0.0282	GEN MOTORS
WO2009104197A1	0.0256	CROMPTON GREAVES
US5660749A	0.0207	YASHIMA DENKI KK
US3659239A	0.0203	MARTON LOUIS L
US3428928A	0.0195	OVITRON CORP
US2992405A	0.0186	RAYTHEON
US1602043A	0.0181	
WO0241337A1	0.0176	MARTON LOUIS L
WO2006016377A1	0.0171	CROMPTON GREAVES
WO03065388A1	0.0164	
US1385624A	0.0163	
GB648697A	0.0158	
GB467804A	0.0158	
US3179908A	0.0153	



Top patents (maximum SCI) arranged by publication date



Interestingly, top 4 SCI patents are right across the time spectrum..

Most relevant patents

FR2784787 (published in 2000)

- The dry power transformer construction has an external surface (11) and **resin block** (5) and inner winding (1). Outer fins (1) protrude from the transformer to provide cooling and there is **an outer film (13) of electric semiconductor material covering the resin block** and set to a low voltage. the wings base section forms a constant section with the resin.

WO 2010139597 (A1) (published in 2010)

- The invention relates to a transformer coil (1) that can be cooled by means of a **heat pipe** (10) and that has a primary winding (3) and a secondary winding (4) and to a transformer that is constructed of transformer coils (1) that can be cooled in such a way. The heat of the transformer coil (1) is removed by means of the heat pipe (10). The **evaporator** (12) of the heat pipe (10) is arranged in the area of the windings (3, 4) for this purpose and forms at least one **laminar evaporator segment** (16), which **extends in the circumferential direction** of the windings (3, 4) and along the winding axis (5) of the transformer coil (1) and in the process passes over a plurality of the turns (401,..., 404) of the secondary winding (4).

US5210513A (published in 1993)

- An electromagnetic apparatus such as a transformer or a single winding inductor is provided with a cooling arrangement. The apparatus has a magnetic core and a coil winding disposed about and carried by a leg of the core. The magnetic core has legs connected to the leg that carries the coil winding and these **legs have flat surfaces that directly contact a flat surface of a metallic heat sink** to thereby provide a direct heat conductive path from the legs to the heat sink. Heat generated in the coil winding is transferred to the heat sink via the leg that carries the coil winding and then to the heat sink via the legs that directly engage the heat sink. Heat generated in the magnetic core due to hysteresis or eddy current loss is also transferred to the heat sink.

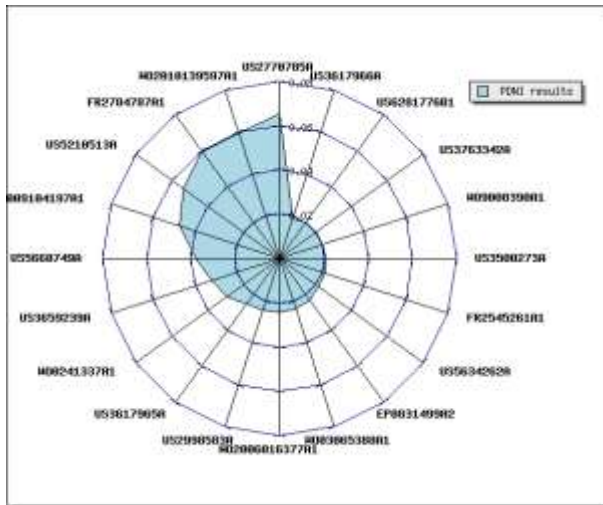
Efficient Search

1 Quickly build the citation network around a relevant patent

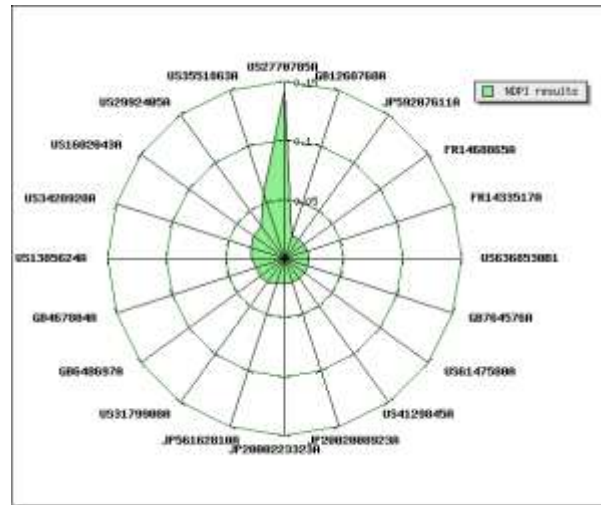


2 Patents ranked on the basis of 3 indices - Quickly identify the most important patents

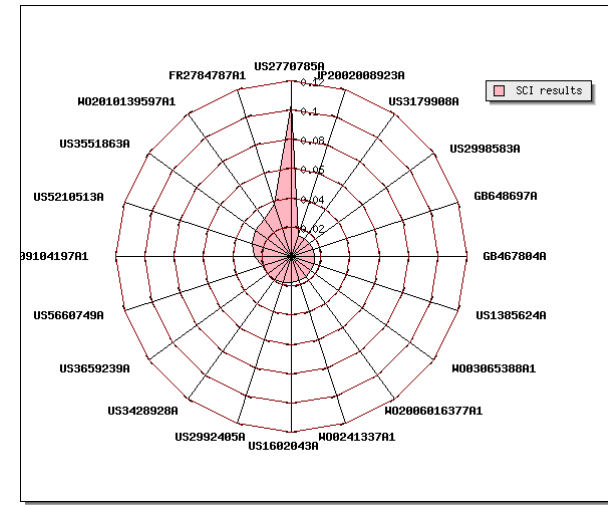
PDNI



NDPI



ECCI/ SCI



With SocialCitnet

Search More Efficiently

- By utilizing relevance information embedded in citation relationships, SocialCitNet helps you get to the most important, most relevant patents faster.
- Use it in conjunction with other search approaches (such as keyword or classification based searches).

Quickly build and analyse your technology landscape

- Identify one patent in your area of technology. The social citation network of this patent doubles up as a technology landscape.
- Expand your landscape intelligently by building the citation networks of the most important patents identified by SocialCitNet.

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