INSIGHTS FROM BIBLIOMETRIC DATA FOR COMPOSITE RESEARCH

Made using python:

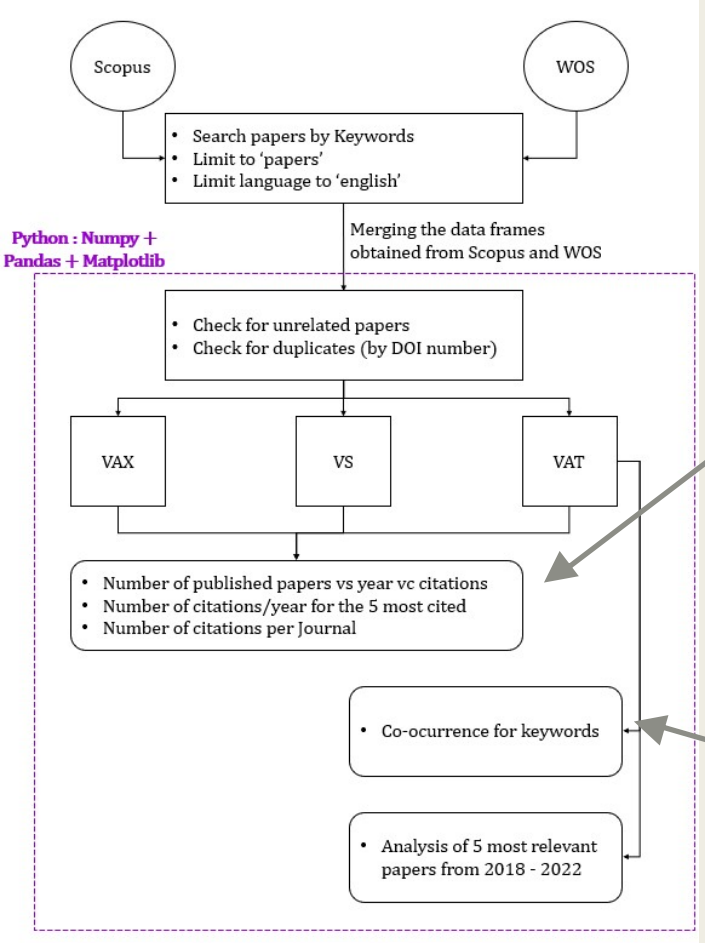
About bibliometric data

- A bibliometric analysis allows a quantitative and statistical analysis of publications.
- This document is separated in two parts
  - *a performance analysis, based on publication output and received citations, regarding the year of publishing, author, and journal.*
  - *a keyword co-occurrence analysis.*
- All analyses were made using Python, Pandas tools.
- All figures were generated using matplotlib library.

Obtaining data

- Data used in this study were collected on March 7, 2022
- Data was obtained as CSV file from
  - *SCOPUS (Elsevier Data base)*
  - *Web Of Science (Clarivate)*
- Contained approx. 200 rows and 78 columns
- Before data collection, selecting keywords that appropriately represent the research topic is of crucial importance.
- The keywords appeared in
  - *"Article title, Abstract, Keywords"*
- keywords used
  - *“laminates” and "fiber angle"*
- The third keyword varied between
  - *"variable stiffness“ (VS), "variable angle tow“ (VAT) and "variable axial“(VAX).*

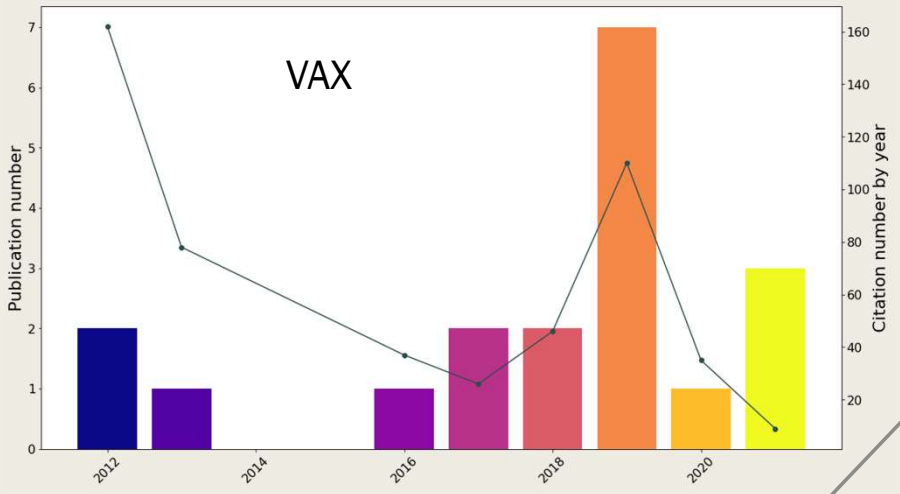
Flowchart with the methodology

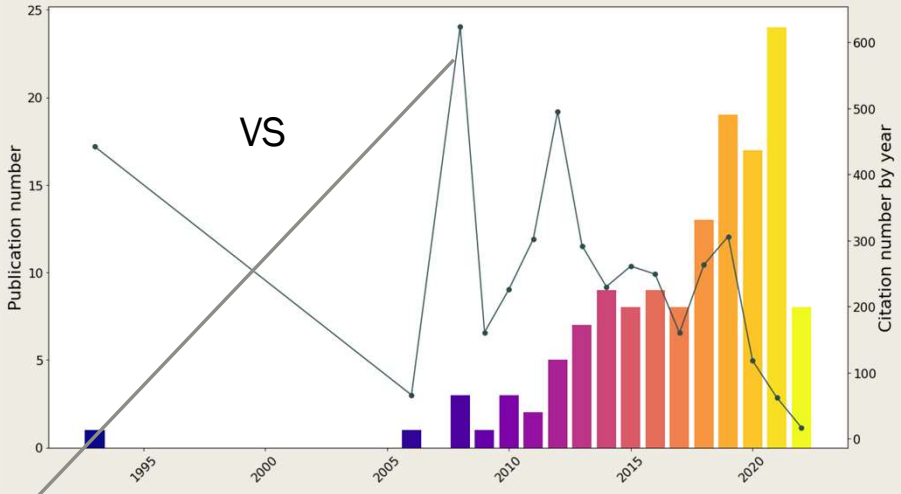


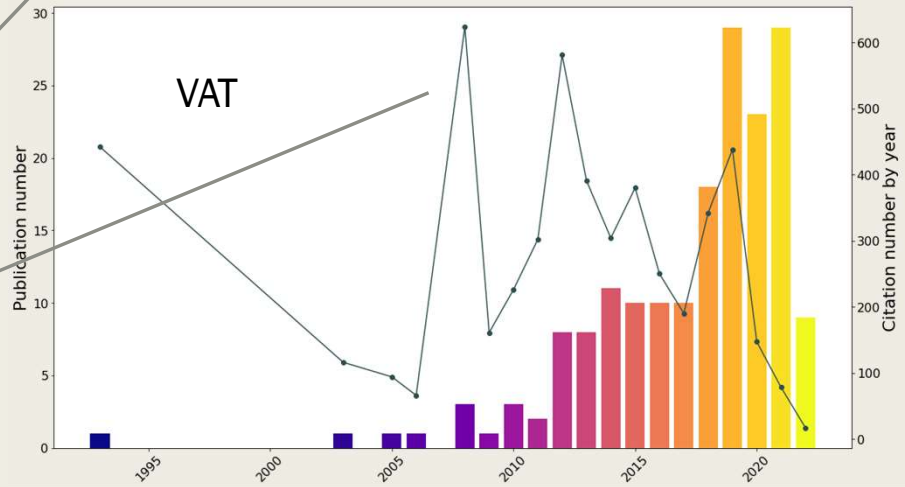
Analysis of performance

Co-occurence map of Keywords (relationship between topics)

Number of publicantios(columns) and citations (lines) by year



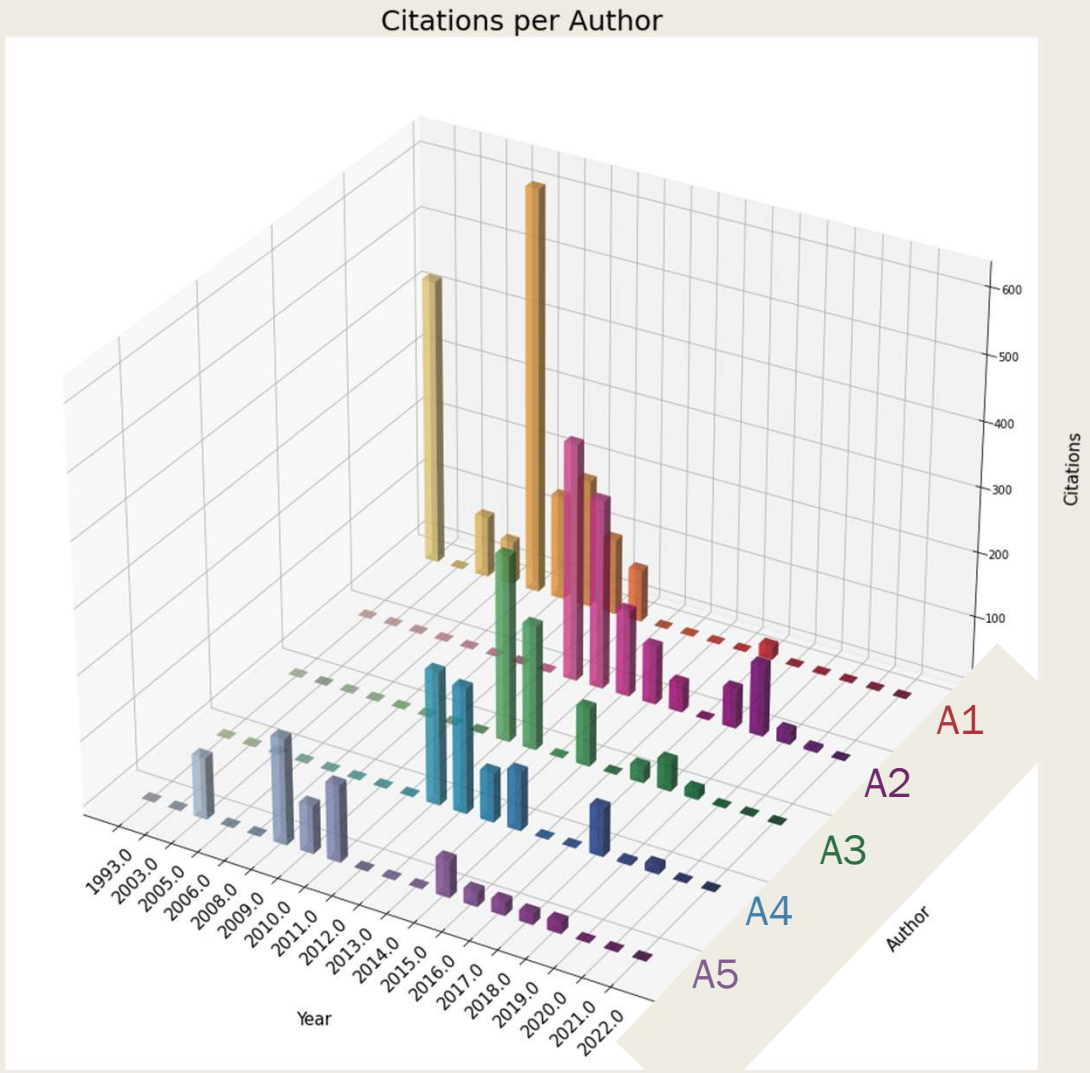




1 author responsible
624 citations

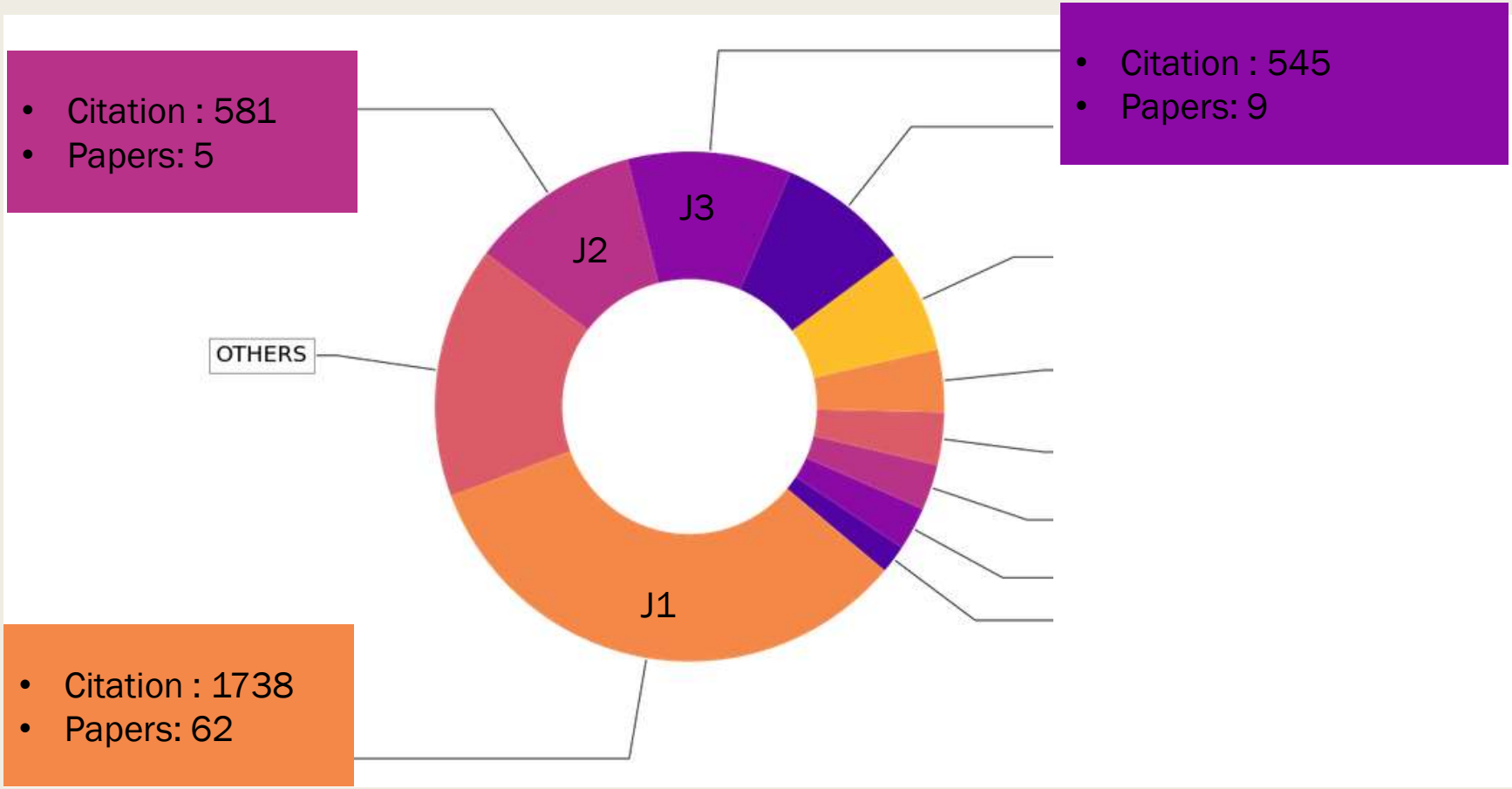
Authors by citations per year

Citations throughout the Years for the most significant author



Relevance of journals

- Were are published the main Papers in the área considering the VAT dataframe

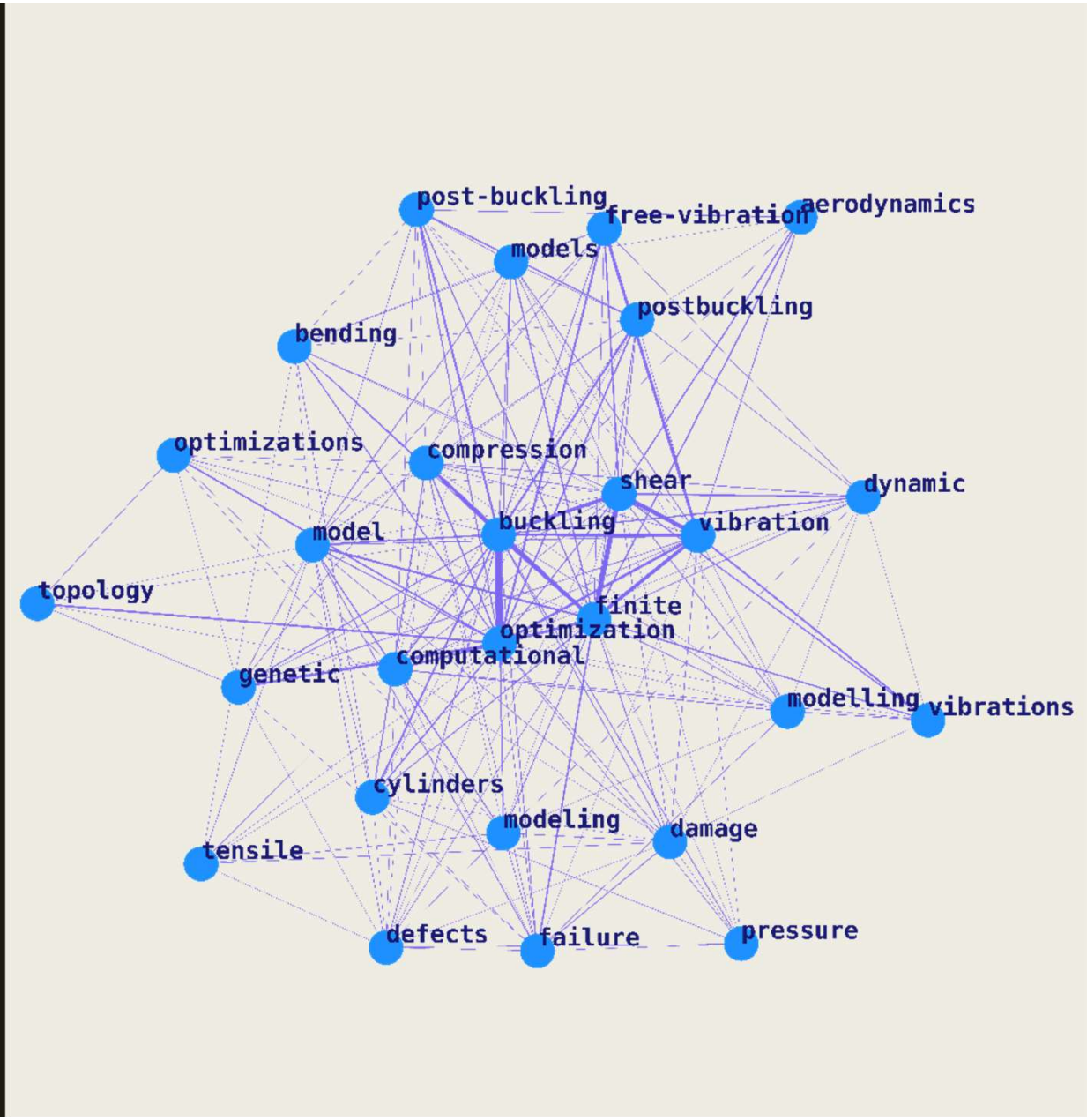


Co-occurence map

- Using graph theory and network-x a map of relevant keywords was made
- The objective of this analysis is to obtain the main topics of research and their relationship among all the papers.
- For this analysis words appear in:
  - *"Title", "Abstract", and "Index Keywords".*
- Then, a list of ‘blank’ words was removed
  - *words that don’t have information (it, they, of, etc)*
  - *Initial keywords used for search*
- A total of 1116 unique words were obtained
  - *Words were ranked by counting and the most significant were chosen*
- 24 words chosen for the final analysis

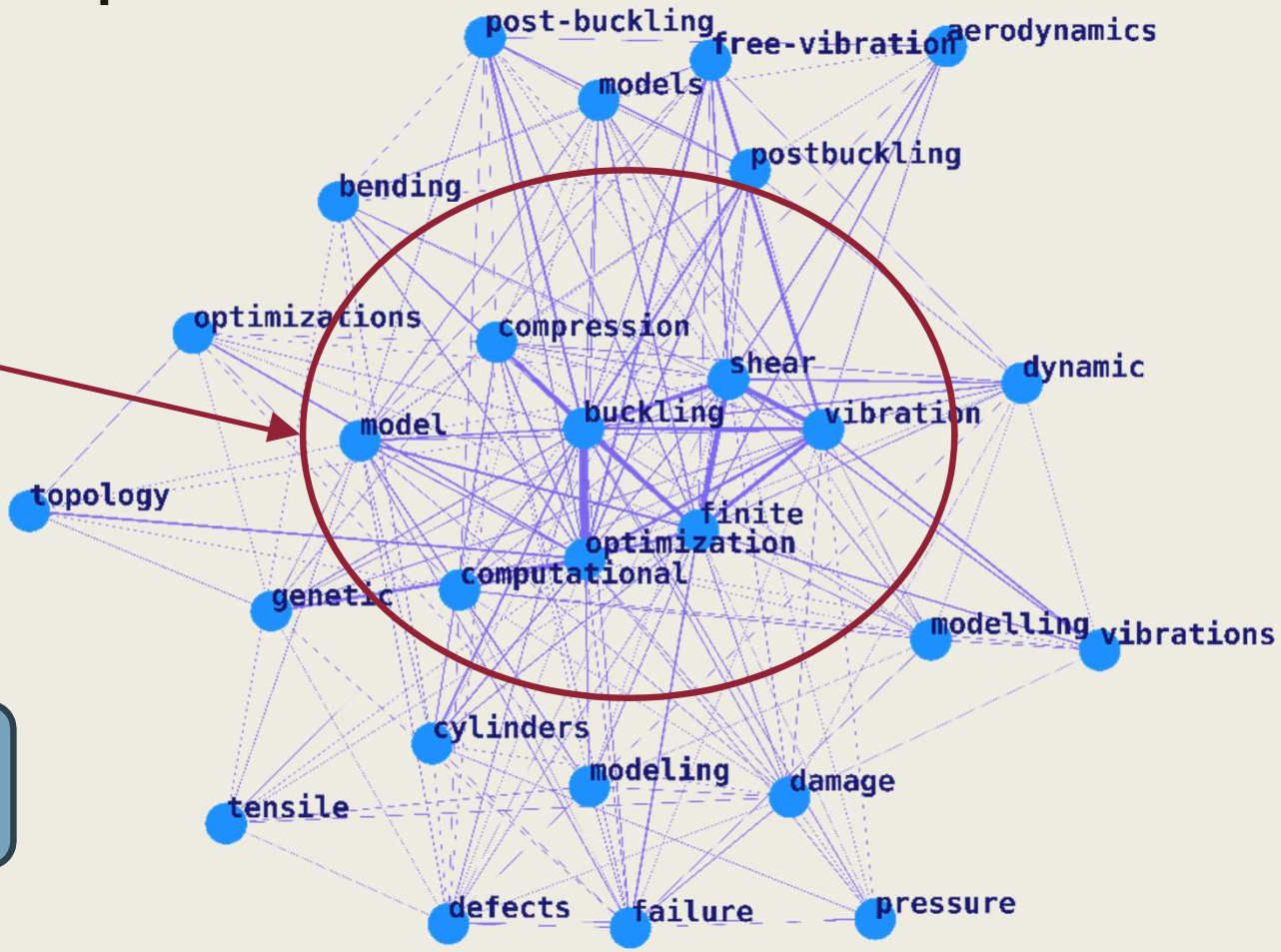
Co-occurence map

The thickness of the relationship line indicates the time in which these Keywords appeared together



Co-occurence map

These words contribute to almost 50% of all papers



Which leaves all marginal Keywords of topics that could be further explored