Title: Incites Analysis of DOE National Laboratories Data for: 1990-2015

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Incites Analysis of DOE National Laboratories: Data for: 1990-2015

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SRO-CP

The Web of Science InCites Tool was used to investigate the Los Alamos National Laboratory (LANL) publication production for the period from 1990 – 2015. Total publications and peer-reviewed publications were collected for all of the Department of Energy (DOE) laboratories for the 1990 – 2015 period. In addition, the same data was collected by Essential Science Indicators research area for each of the DOE laboratories. Analysis focused on the peer-reviewed publications due to the uncertainty in the coverage of the total publications area. Analyses included total peer-reviewed publications by year for the period, and peer-reviewed publications by year in the physics, chemistry, engineering, biology and biochemistry, genetics, and computer science research areas. LANL was in the top five laboratories for each of these areas. It was observed that LANL overall productivity has been steady or declining during this period, and other laboratories (notably Argonne and Oak Ridge) have moved past LANL in the past three years in terms of overall productivity.

Incites Analysis of DOE National Laboratories

Data for: 1990-2015

Shelby Milligan

July 18, 2017

Los Alamos NATIONAL LABORATORY EST.1943

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

Background

- **Interest in analyzing the patterns of DOE publications**
- **Used Web of Science InCites tool to examine the national laboratories' publications data for the 1990 to 2015 period**
- **The analysis included peer publications (articles, reviews, and letters) as well as total publications under the subjects analyzed**
- **The data received shows**
  - Which labs are leading in total peer publications
  - Which labs are leading in peer publications under each subject
    - » And from this we can conclude who is influencing the subjects the most

Methods

- **Steps**
  - INCITES LANL PAGE
    - http://incites.thomsonreuters.com/
    - Under ORGANIZATIONS
      - Time period of 1990 - 2015
      - Categorized using different organizations including
        - Los Alamos National Laboratory
        - Lawrence Berkeley National Laboratory
        - Lawrence Livermore National Laboratory
        - Argonne National Laboratory
        - Ames National Laboratory
        - Brookhaven National Laboratory
        - Fermi National Accelerator Laboratory
        - Idaho National Laboratory
        - National Renewable Energy Laboratory
        - National Energy Technology Laboratory
        - Pacific Northwest National Laboratory
        - New Brunswick Laboratory
        - Jefferson National Accelerator
        - Princeton Physics Laboratory
        - Stanford Linear Accelerator Center
        - Sandia National Laboratory
        - Radiological & Environmental Sciences Laboratory
        - Savannah River Ecology Laboratory
        - Oak Ridge National Laboratory

Methods

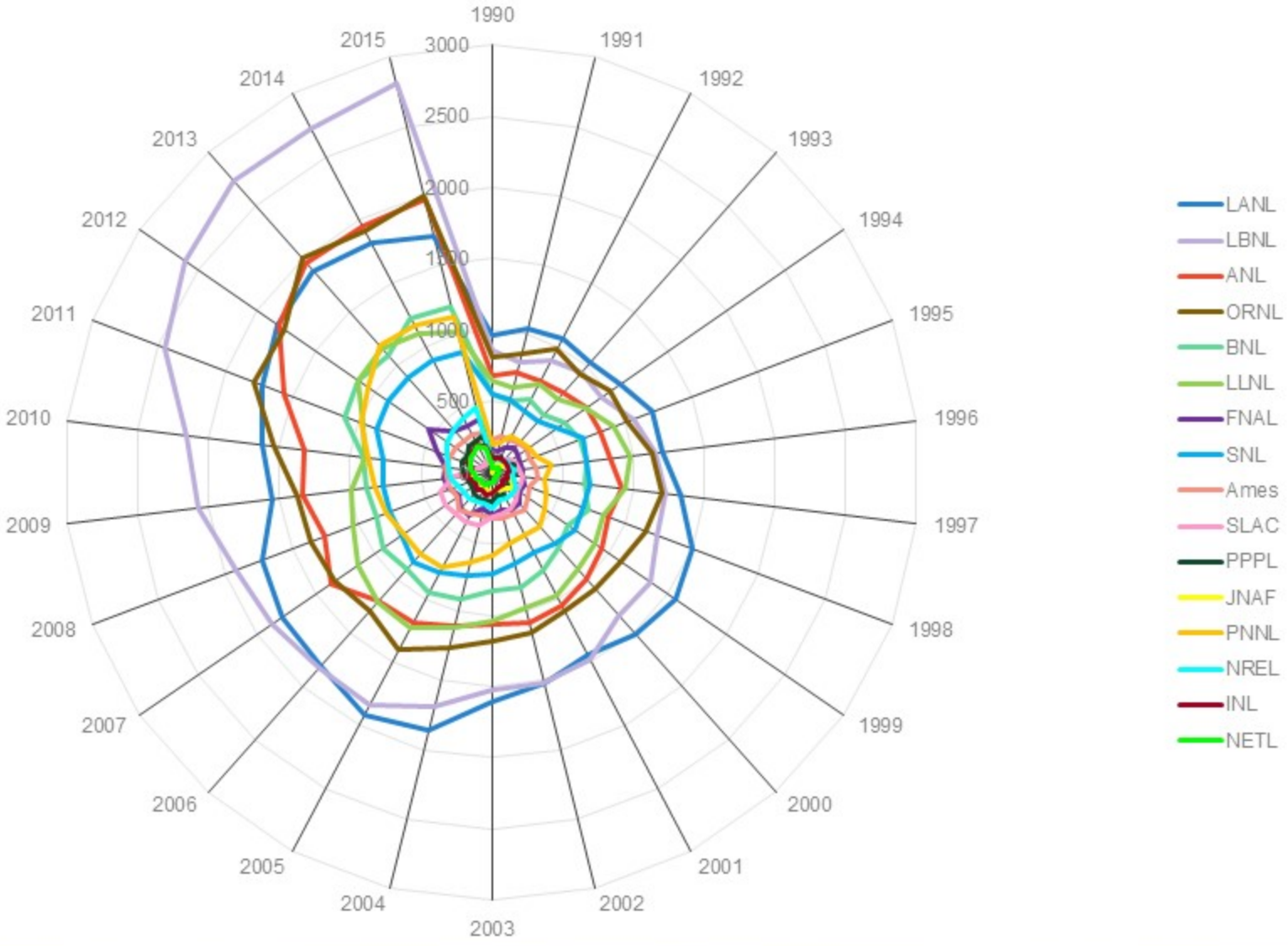
- **Steps**
  - Differentiated between total publications for each laboratory versus peer publications (articles, letters, and reviews) for each laboratory by changing document type
  - Categorized using subject areas (research areas) under the ESSENTIAL SCIENCE INDICATOR schema
    - Biology and Biochemistry
    - Chemistry
    - Clinical medicine
    - Computer science
    - Engineering
    - Environment and ecology
    - Geosciences
    - Immunology
    - Materials science
    - Mathematics
    - Microbiology
    - Molecular biology and genetics
    - Physics
    - Plant and animal science
    - Social sciences
    - Space sciences
    - Totals
  - EXCEL
    - Collected, organized, and analyzed data
      - Used radars, stack charts, and column graphs to further differentiate the data
        - » Distinguished between publication number and publication percentages

Total Peer Reviewed Publications

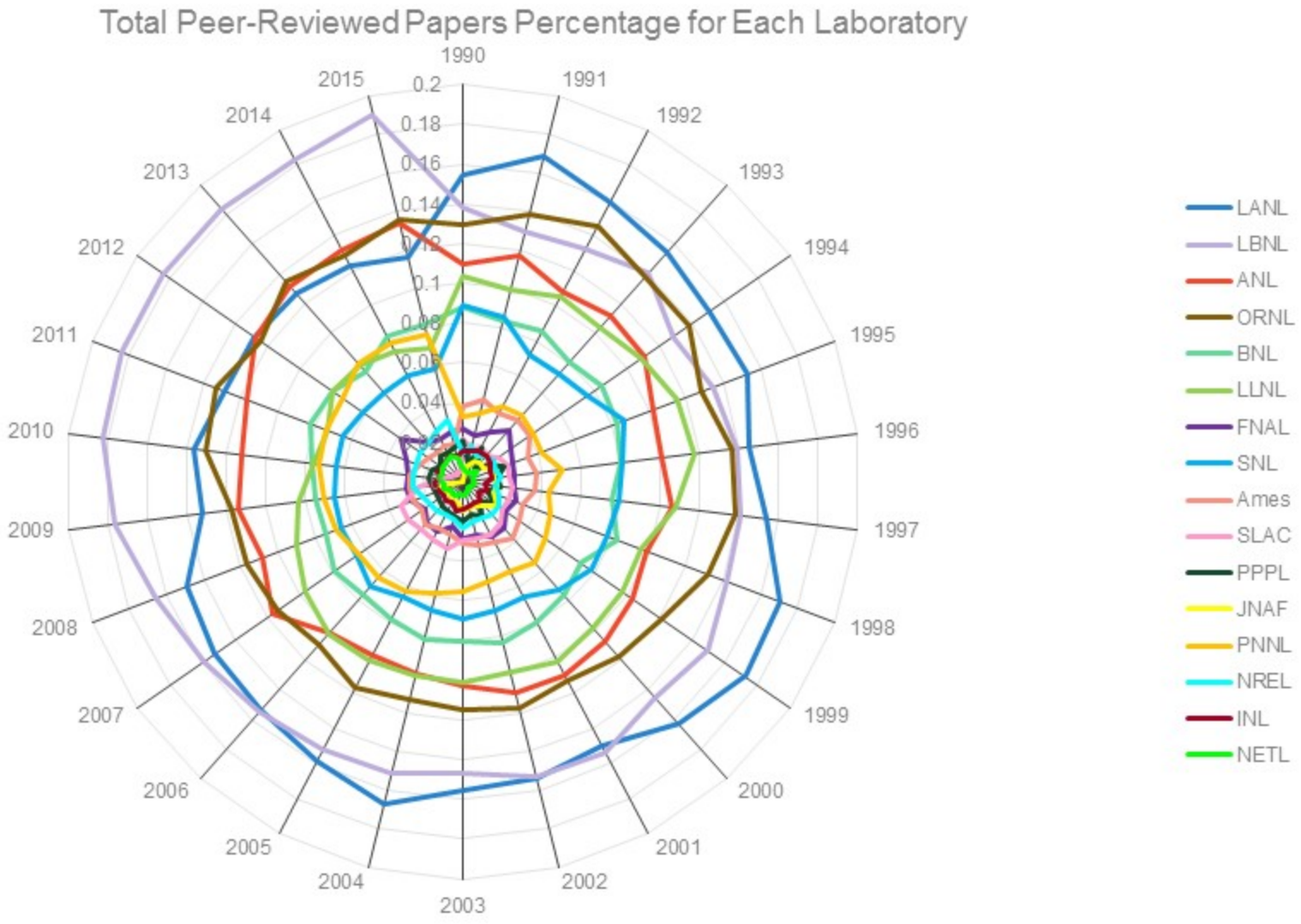
TOP 5 Institutions (based on total number of peer reviewed publications)

LAWRENCE BERKELEY
OAK RIDGE
ARGONNE
LANL
BROOKHAVEN

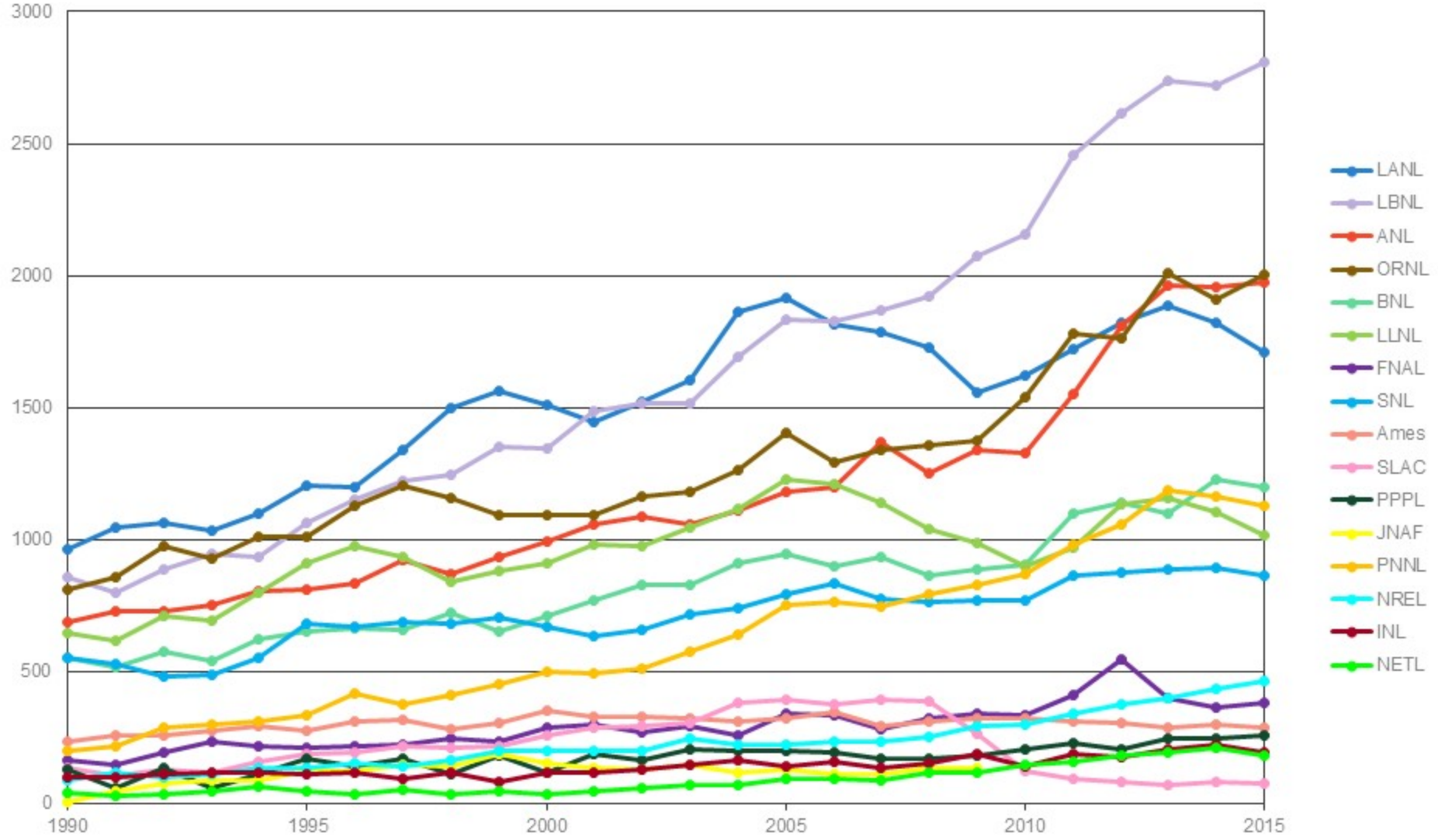
Total Peer Reviewed Papers



Total Peer Reviewed Papers Percentage



Total Peer Reviewed Papers

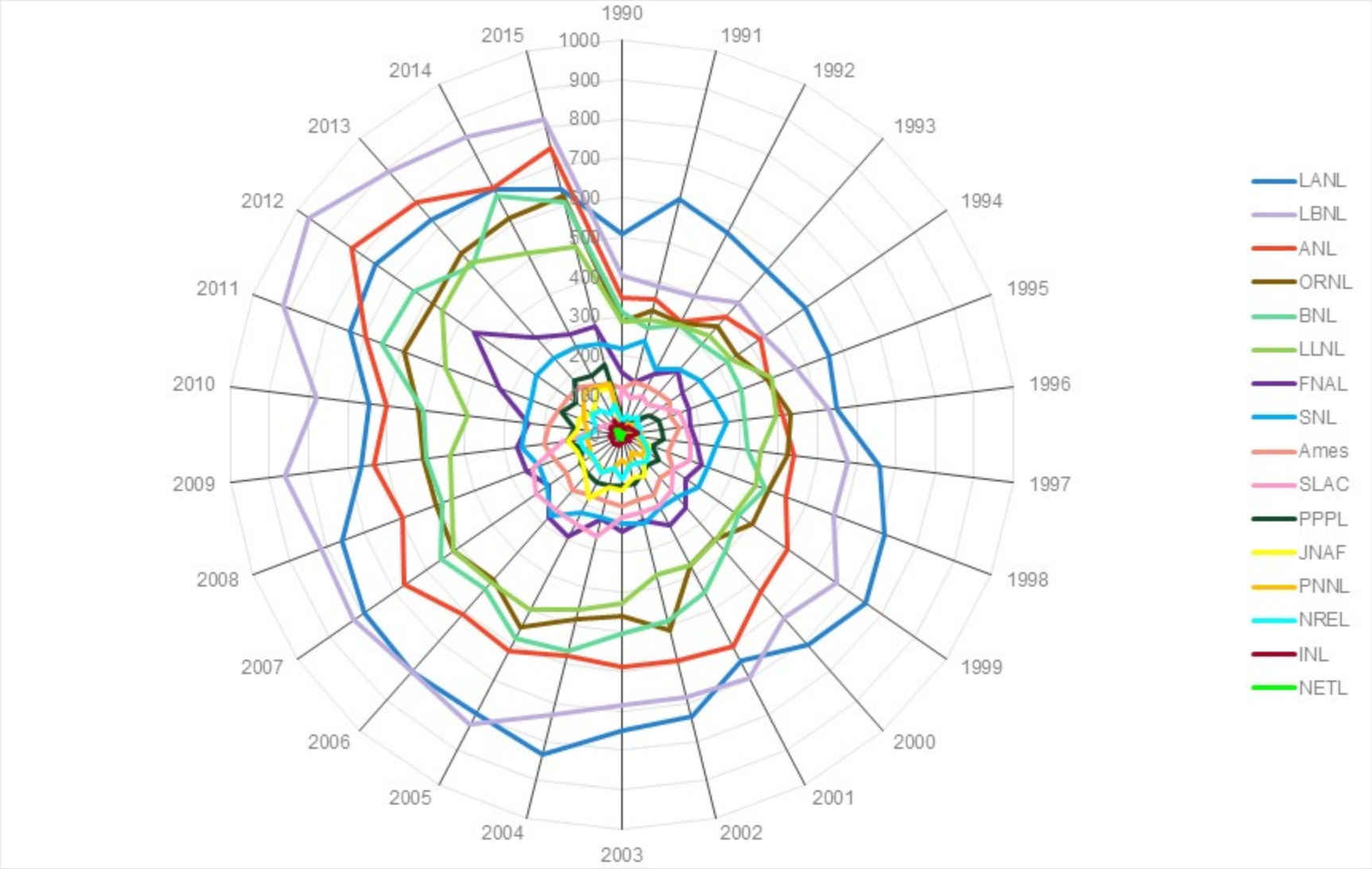


Physics

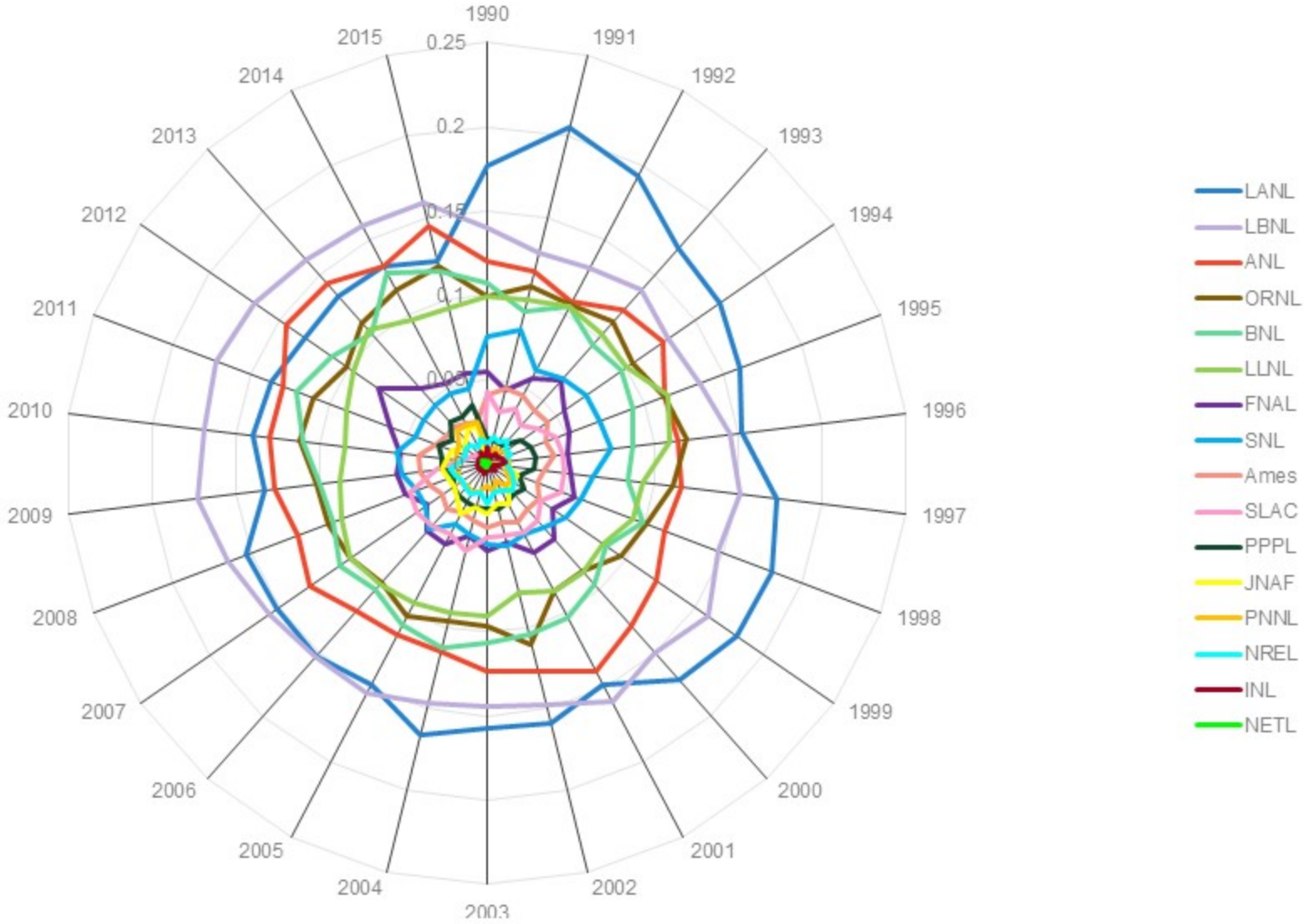
TOP 5 Institutions (based on total number of peer reviewed physics publications)

LAWRENCE BERKELEY
ARGONNE
LANL
OAK RIDGE
BROOKHAVEN

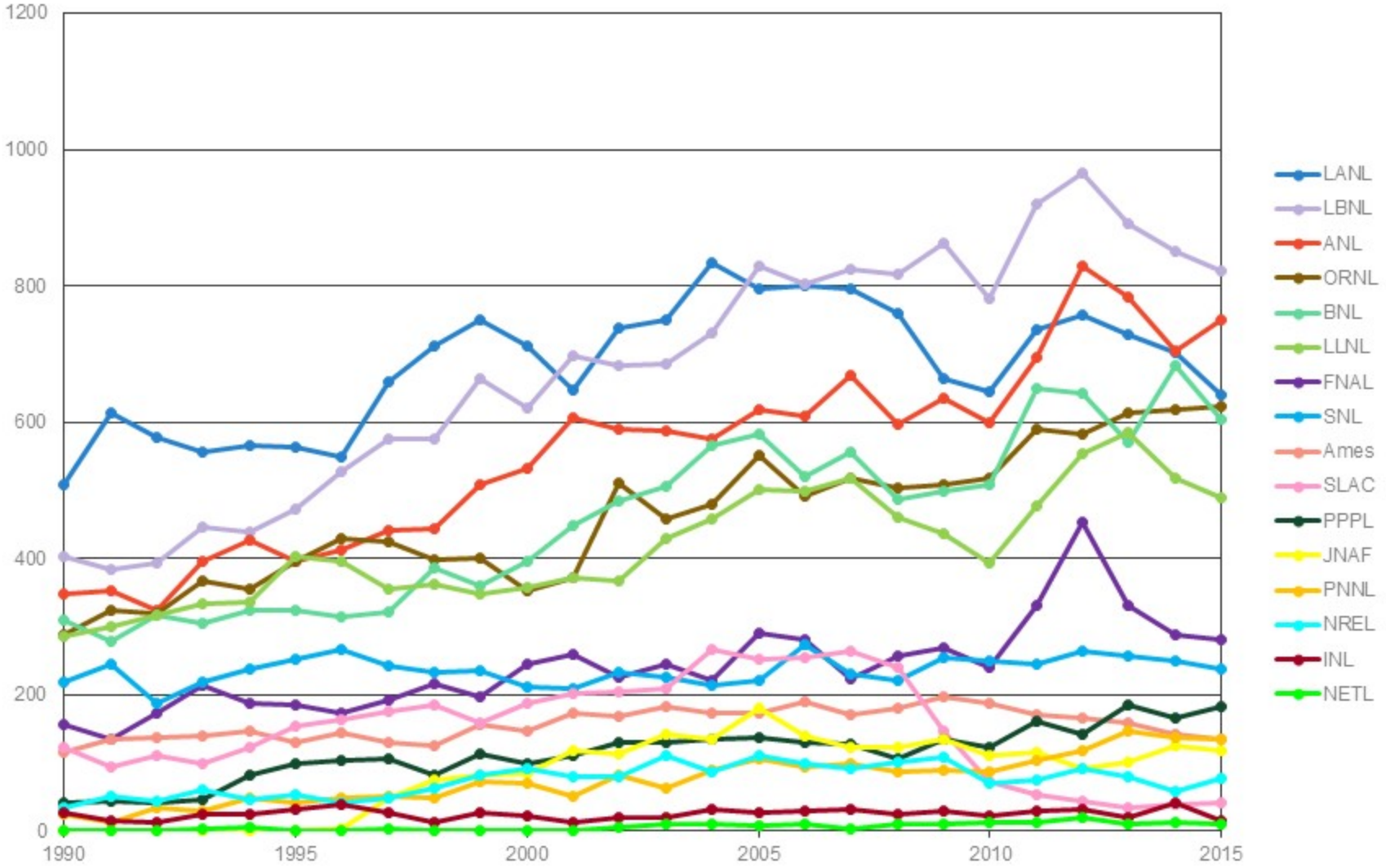
Physics Peer Reviewed Papers



Physics Peer Reviewed Papers Percentage



Physics Peer Reviewed Papers



Chemistry

TOP 5 Institutions (based on total number of chemistry peer reviewed publications)

LAWRENCE BERKELEY

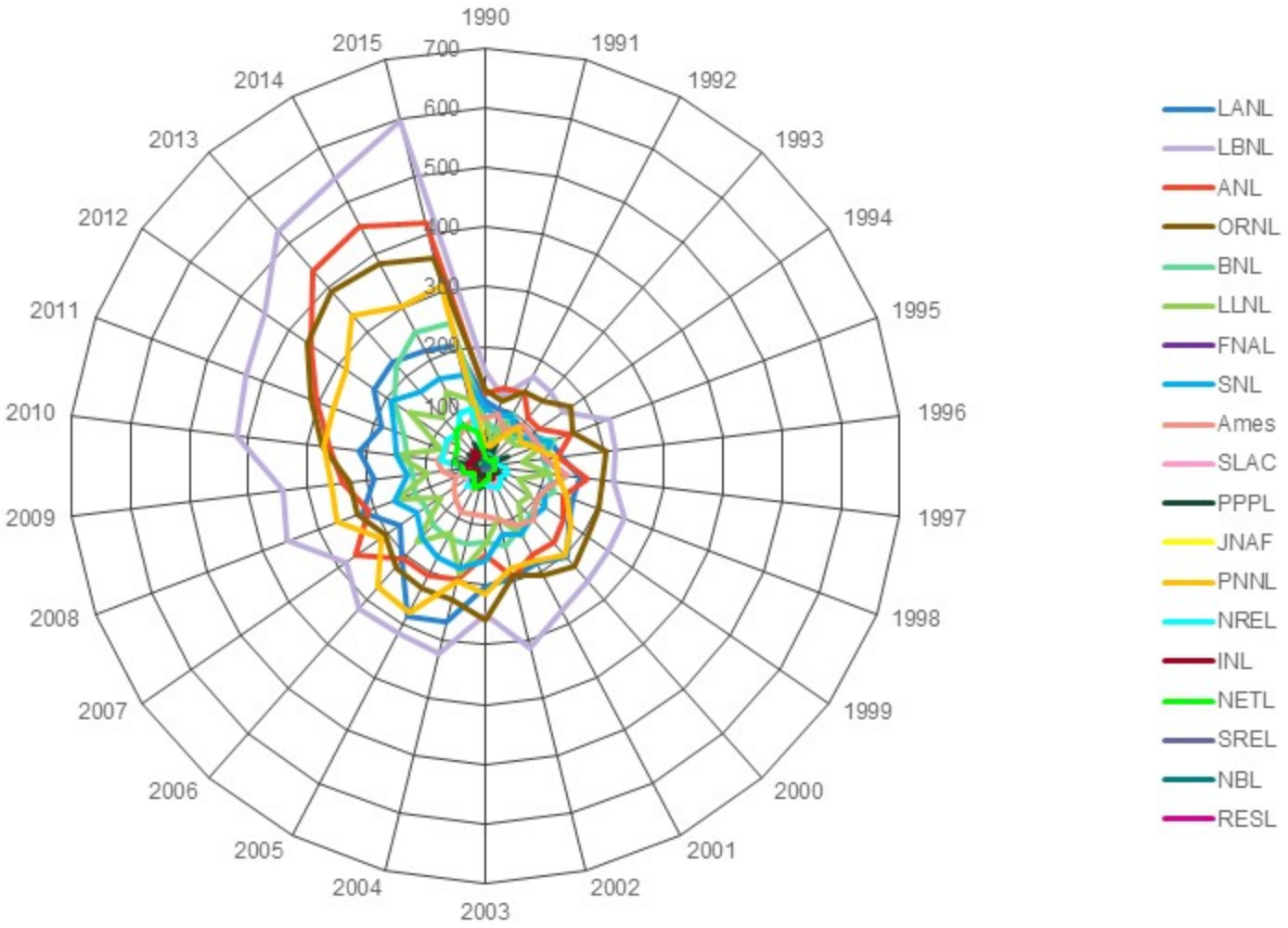
ARGONNE

OAK RIDGE

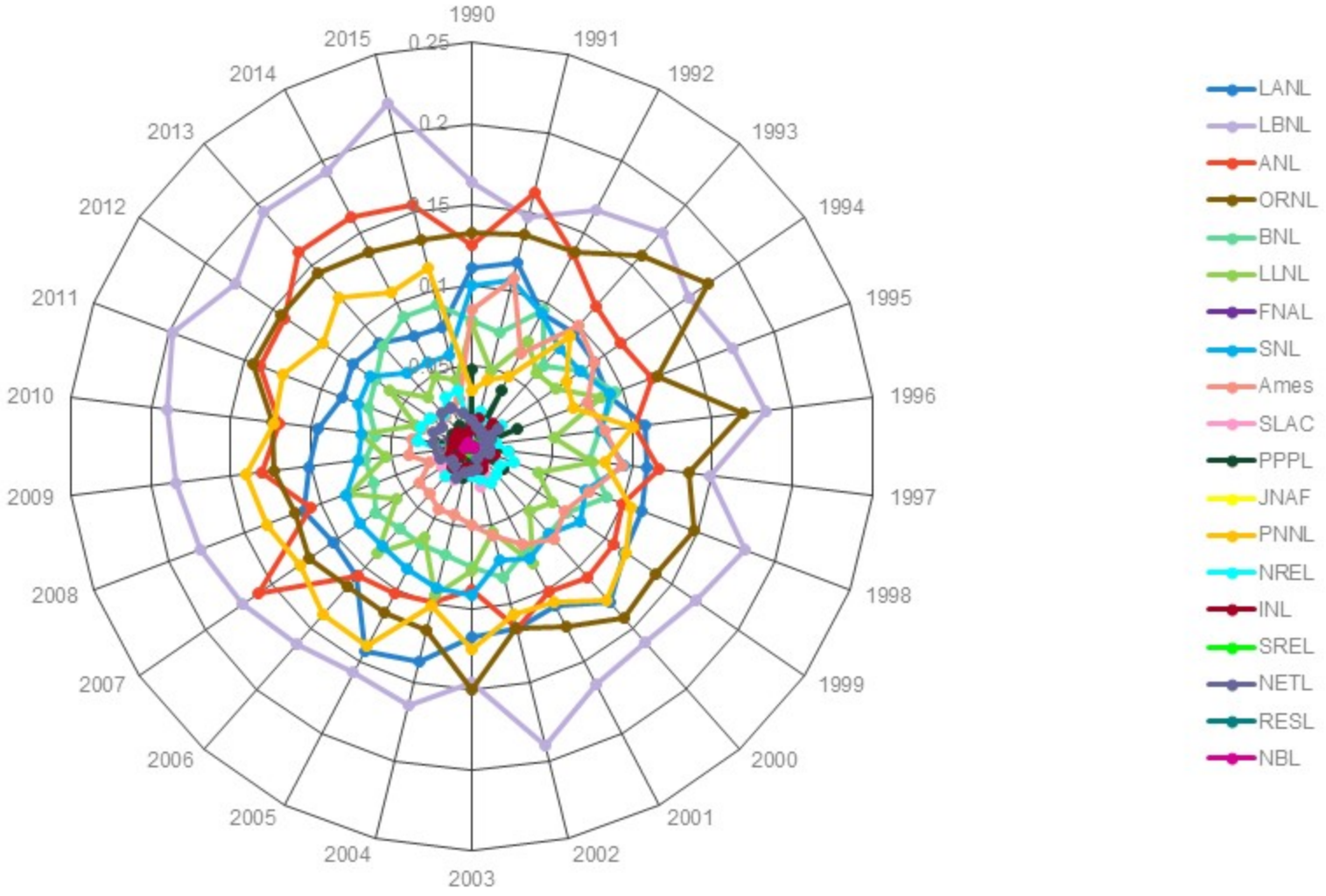
PACIFIC NORTHWEST

BROOKHAVEN

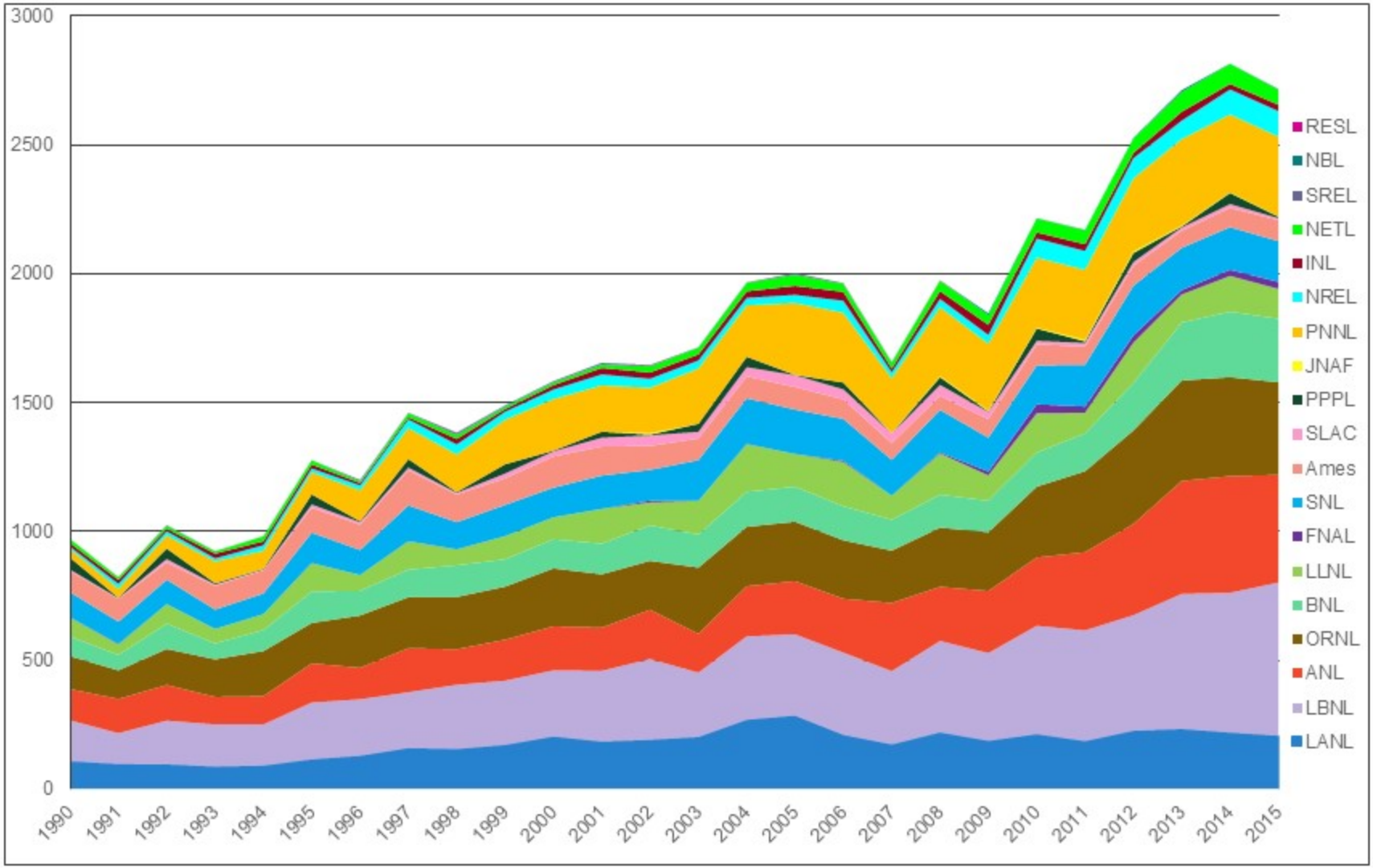
Chemistry Peer Reviewed Papers



Chemistry Peer Reviewed Papers Percentage



Chemistry Peer Reviewed Papers

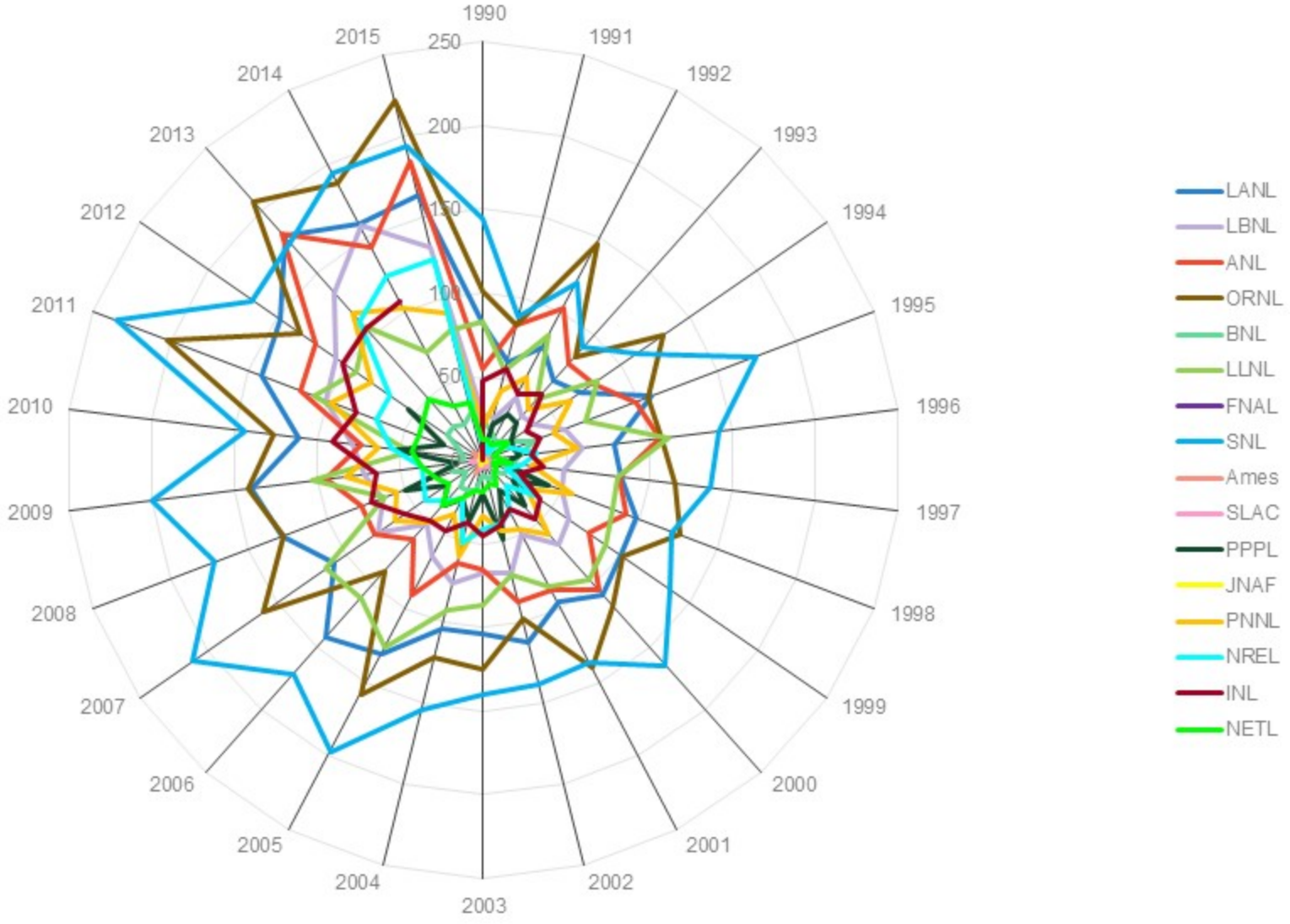


Engineering

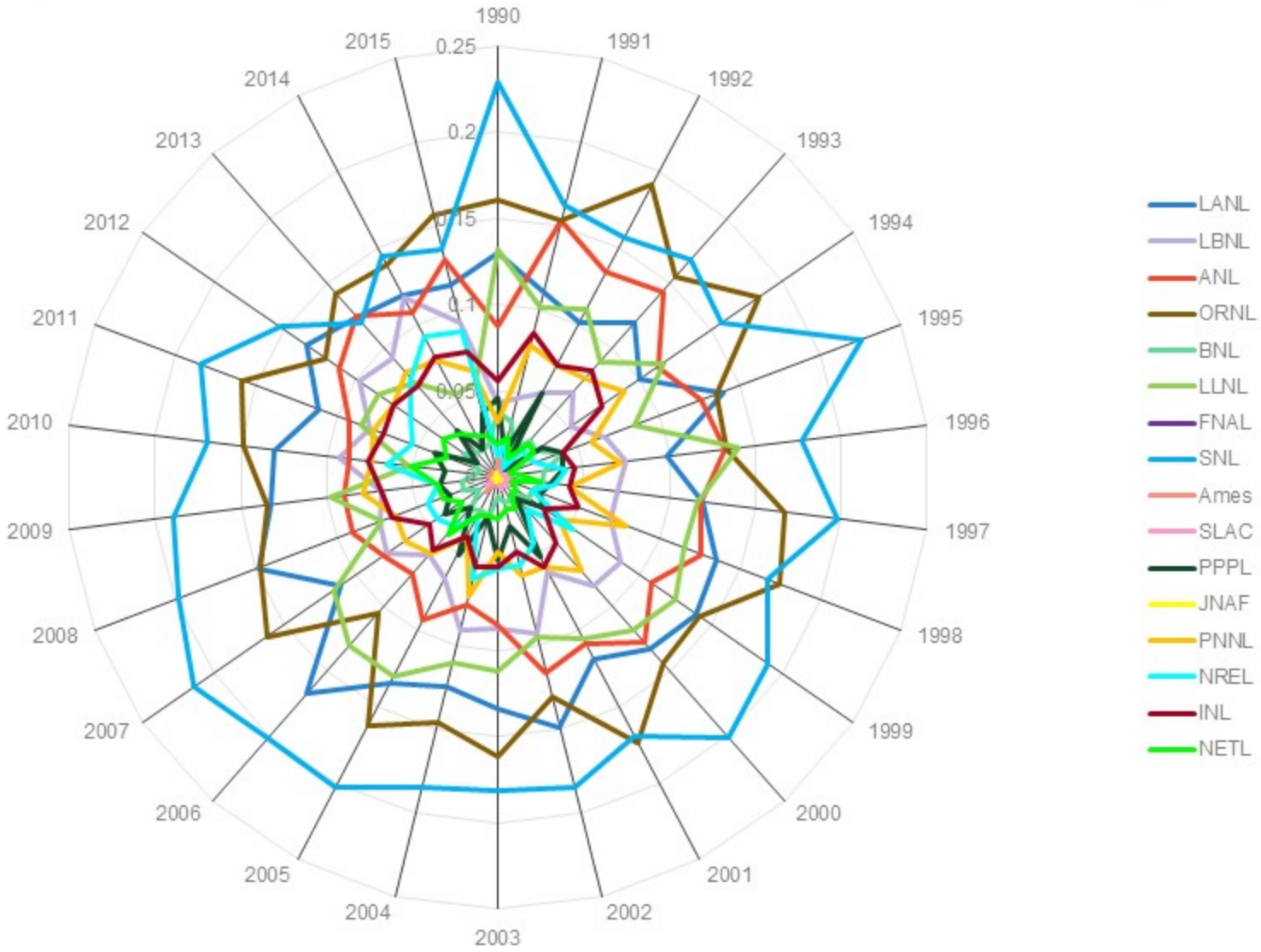
TOP 5 Institutions (based on total number of engineering peer reviewed publications)

OAK RIDGE
SANDIA
ARGONNE
LANL
LAWRENCE BERKELEY

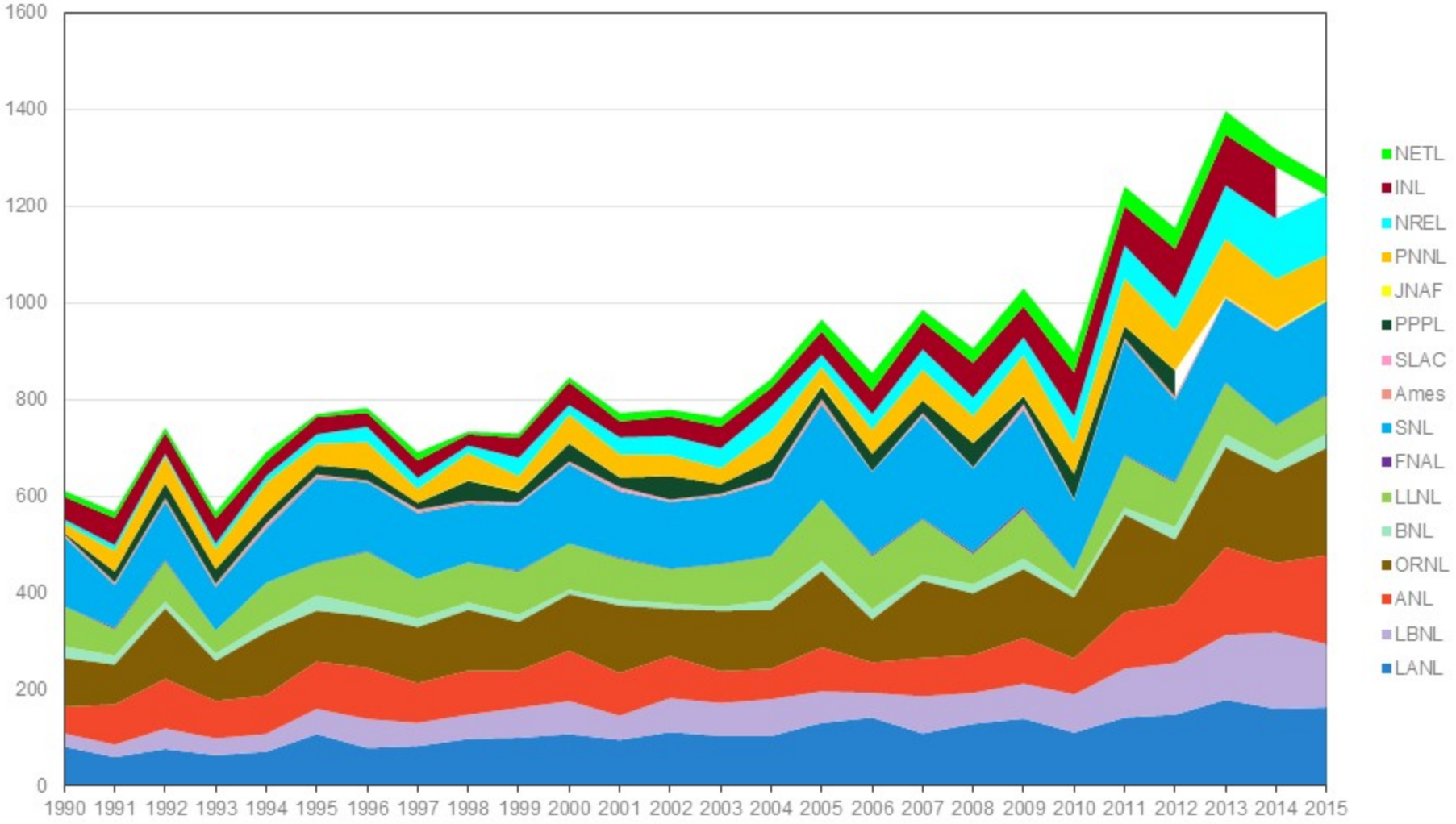
Engineering Peer Reviewed Papers



Engineering Peer Reviewed Papers Percentage



Engineering Peer Reviewed Papers

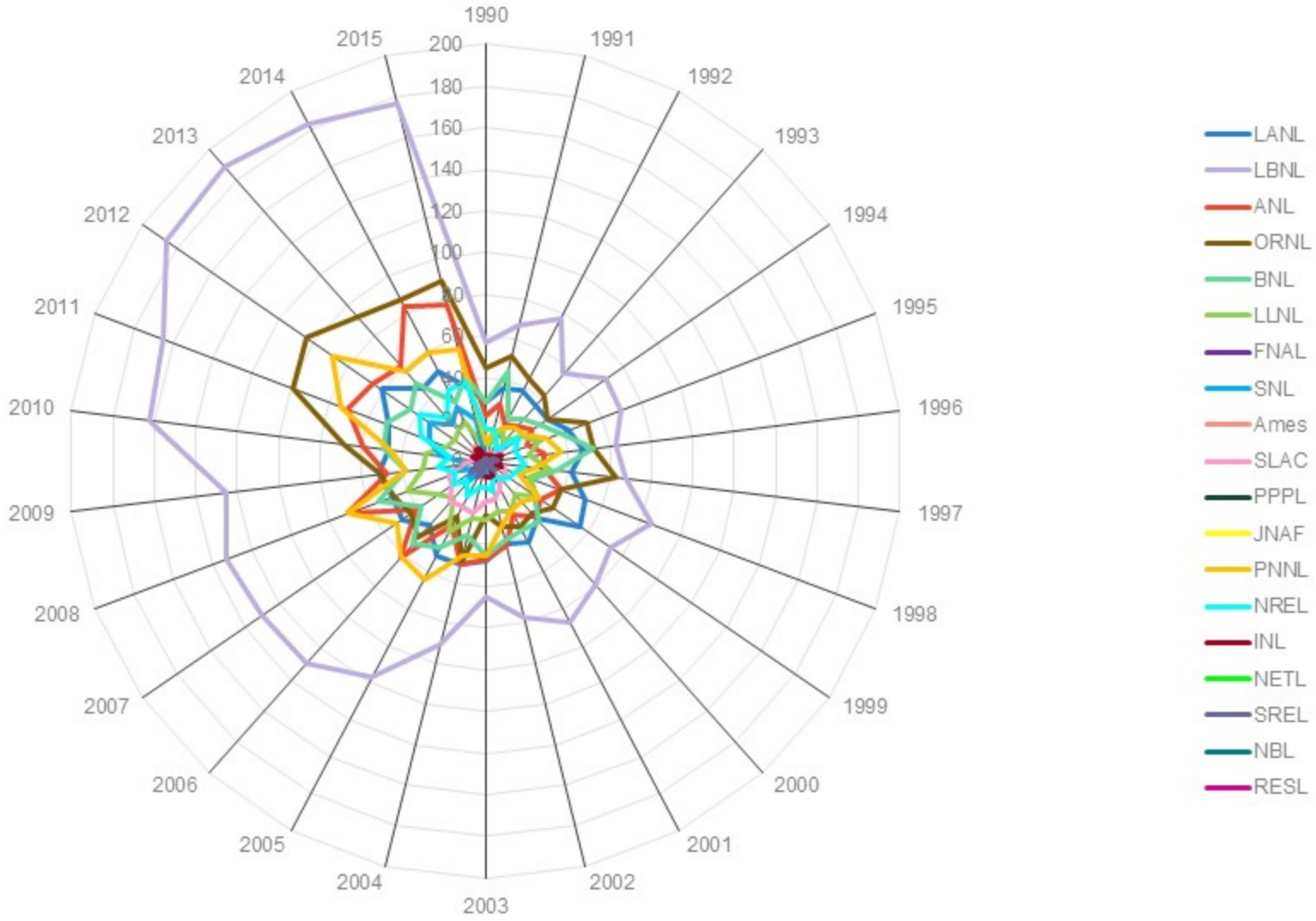


Biology & Biochemistry

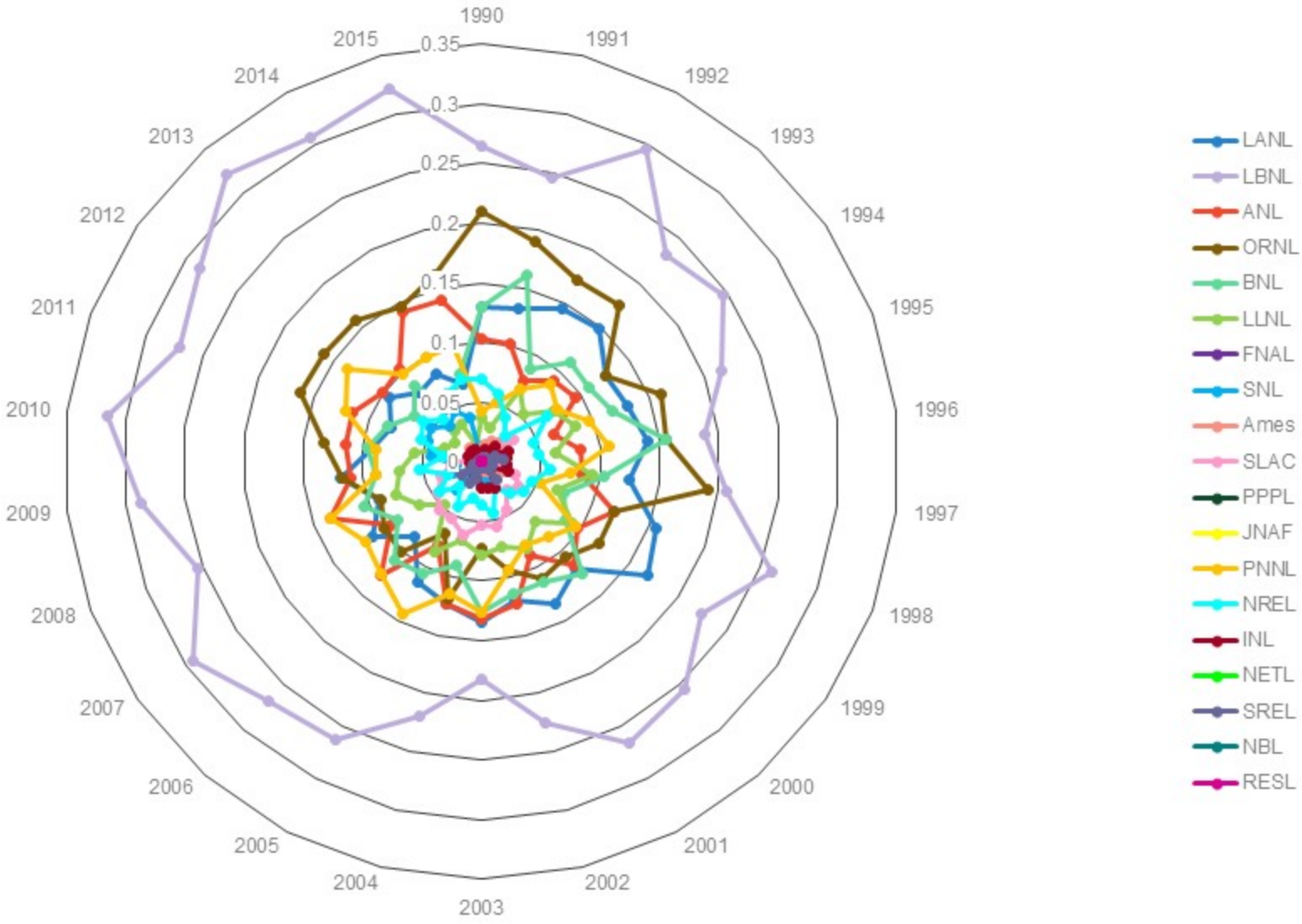
TOP 5 Institutions (based on total number of biology & biochemistry peer reviewed publications)

LAWRENCE BERKELEY
OAK RIDGE
ARGONNE
PACIFIC NORTHWEST
LANL

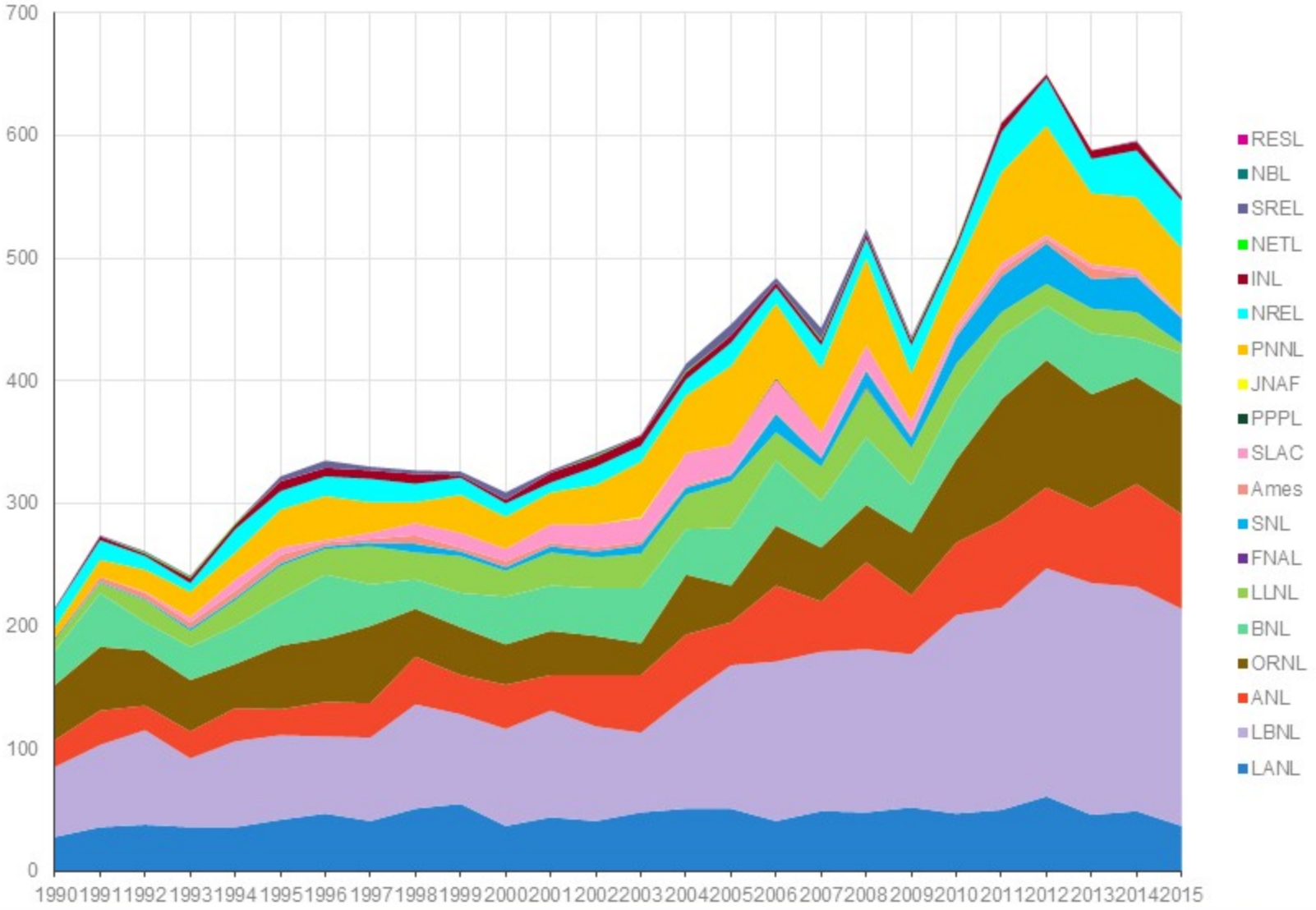
Biology and Biochemistry Peer Reviewed Papers



Biology and Biochemistry
Peer Reviewed Papers Percentage



Biology and Biochemistry
Peer Reviewed Papers

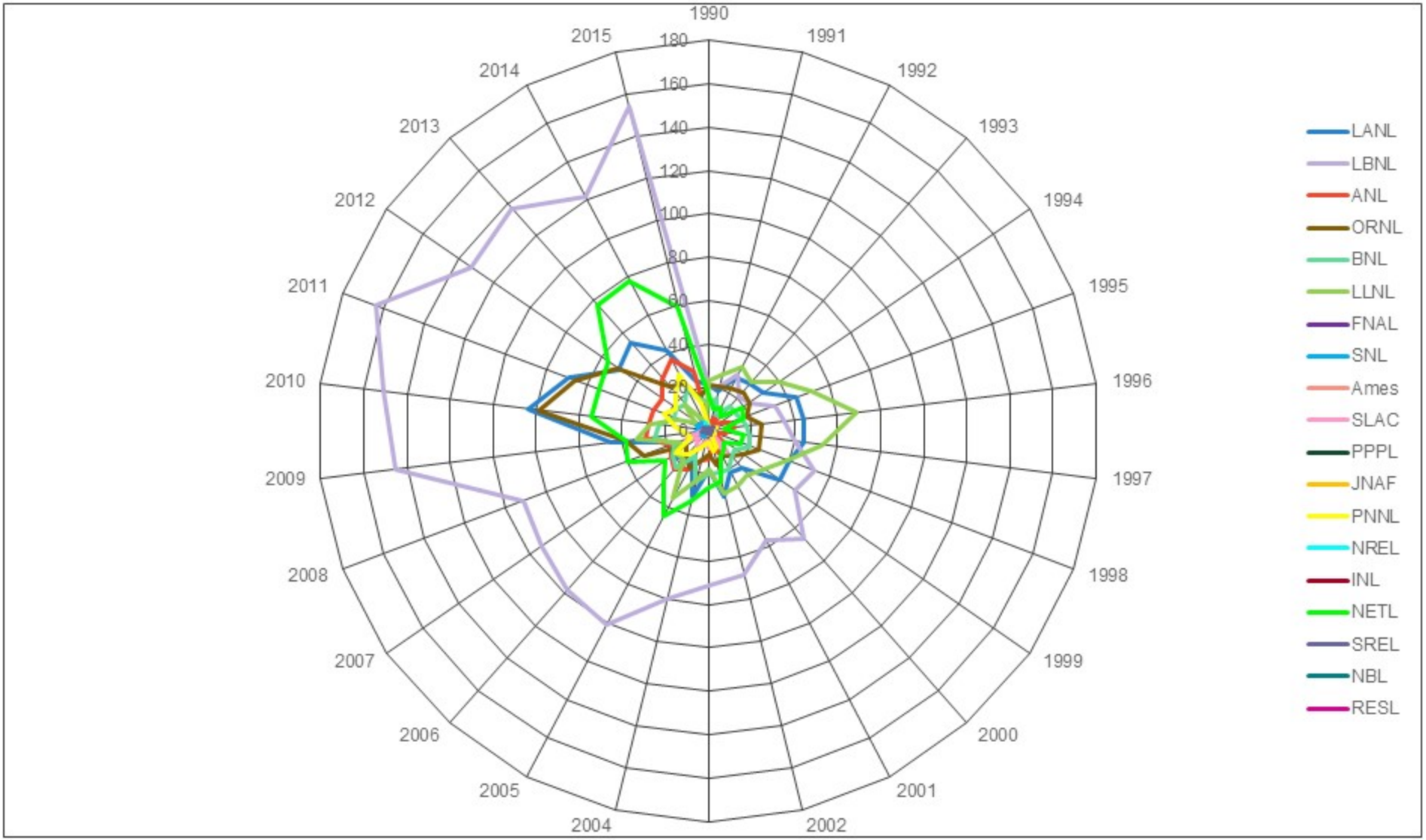


Genetics

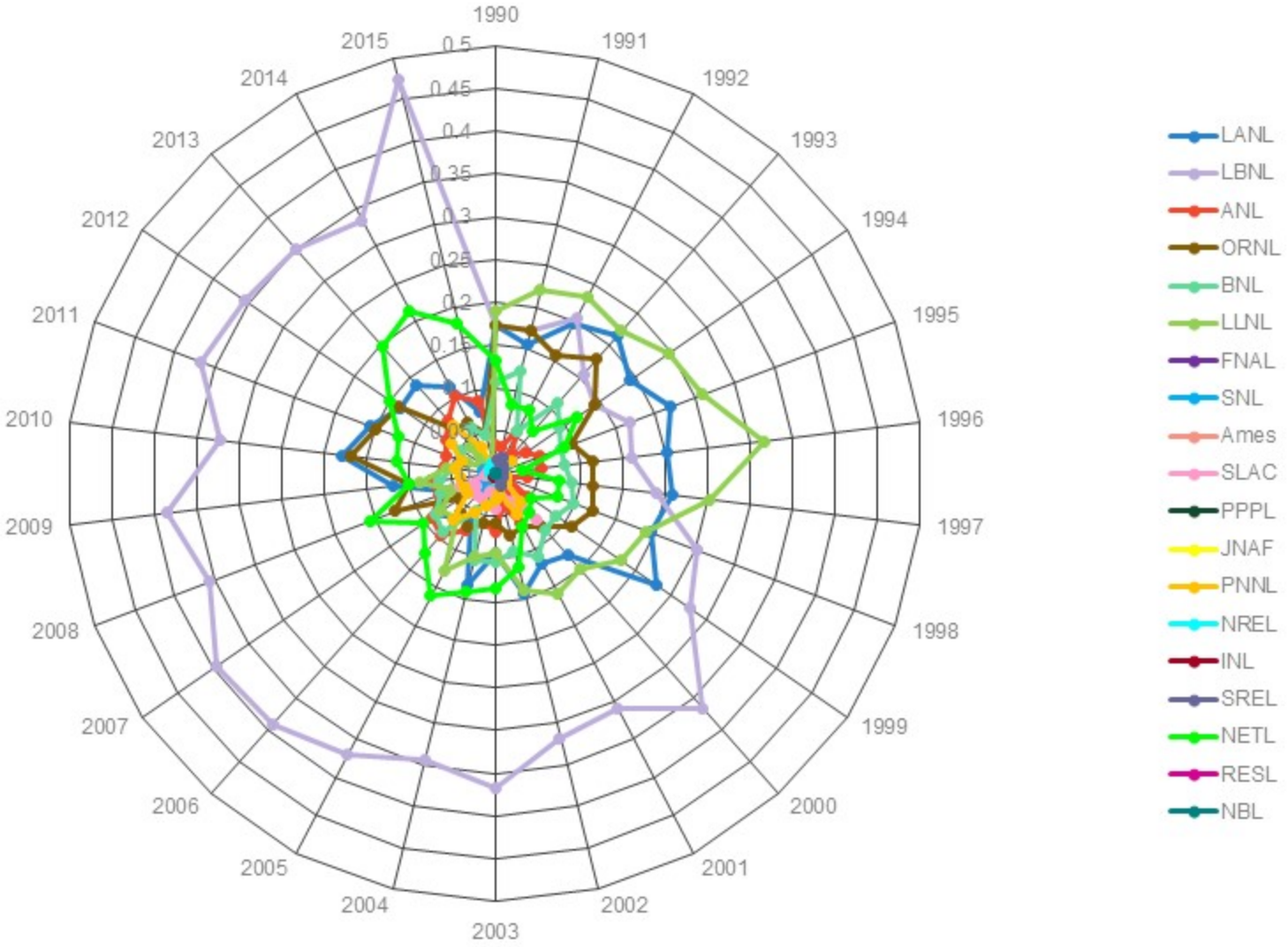
TOP 5 Institutions (based on total number of genetics peer reviewed publications)

LAWRENCE BERKELEY
NATIONAL ENERGY
LANL
ARGONNE
PACIFIC NORTHWEST

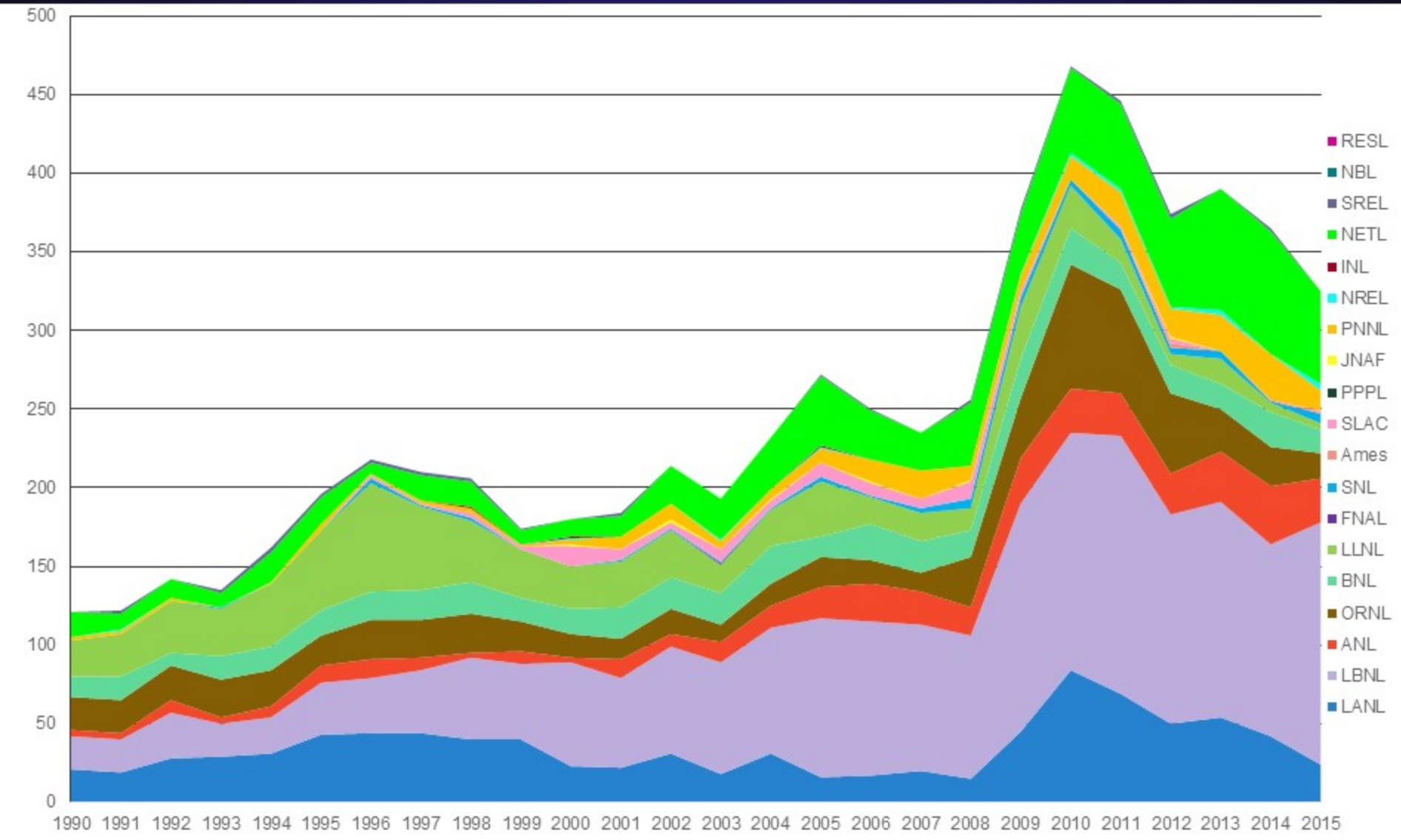
Genetics Peer Reviewed Papers



Genetics Peer Reviewed Papers Percentage



Genetics Peer Reviewed Papers

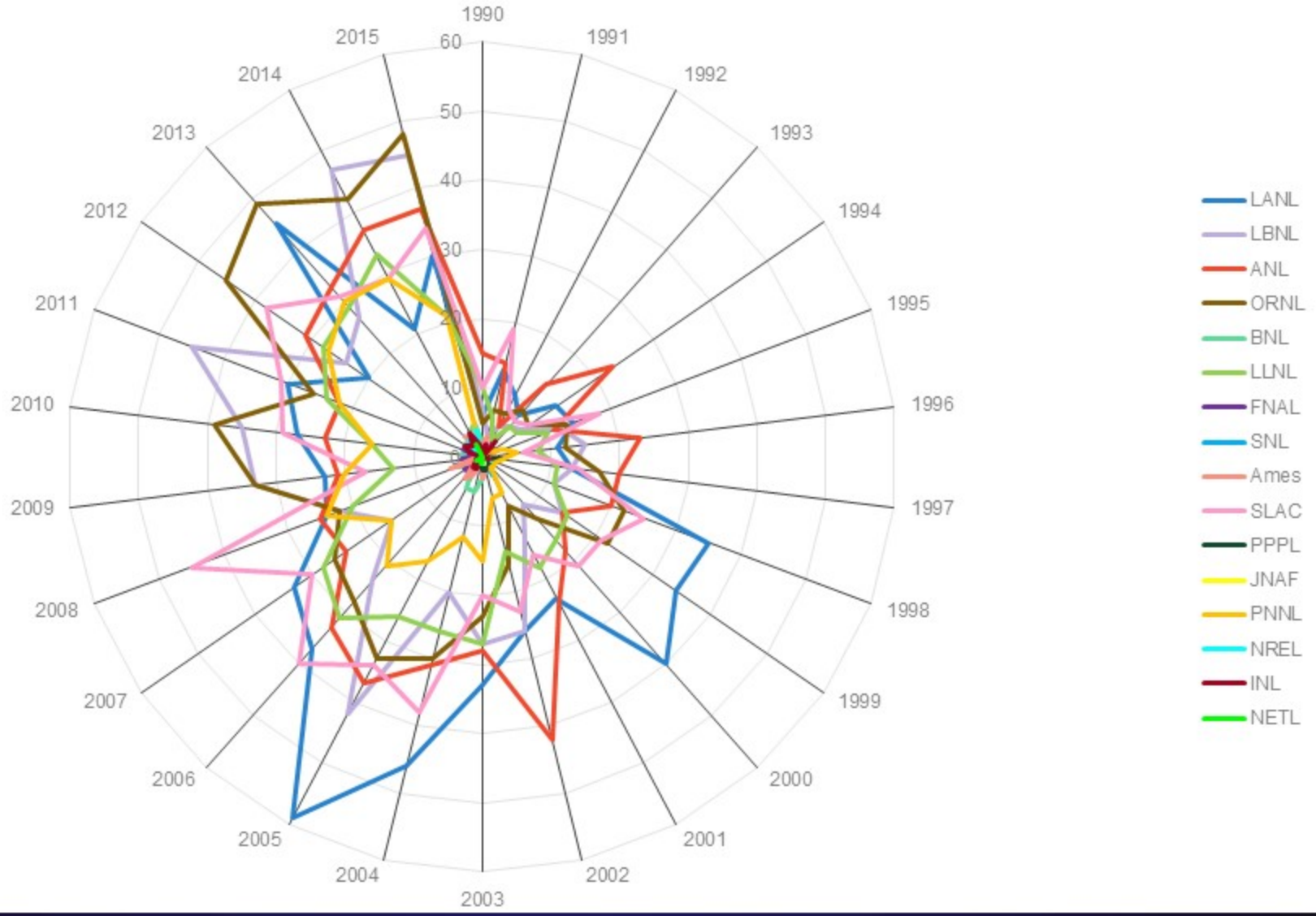


Computer Science

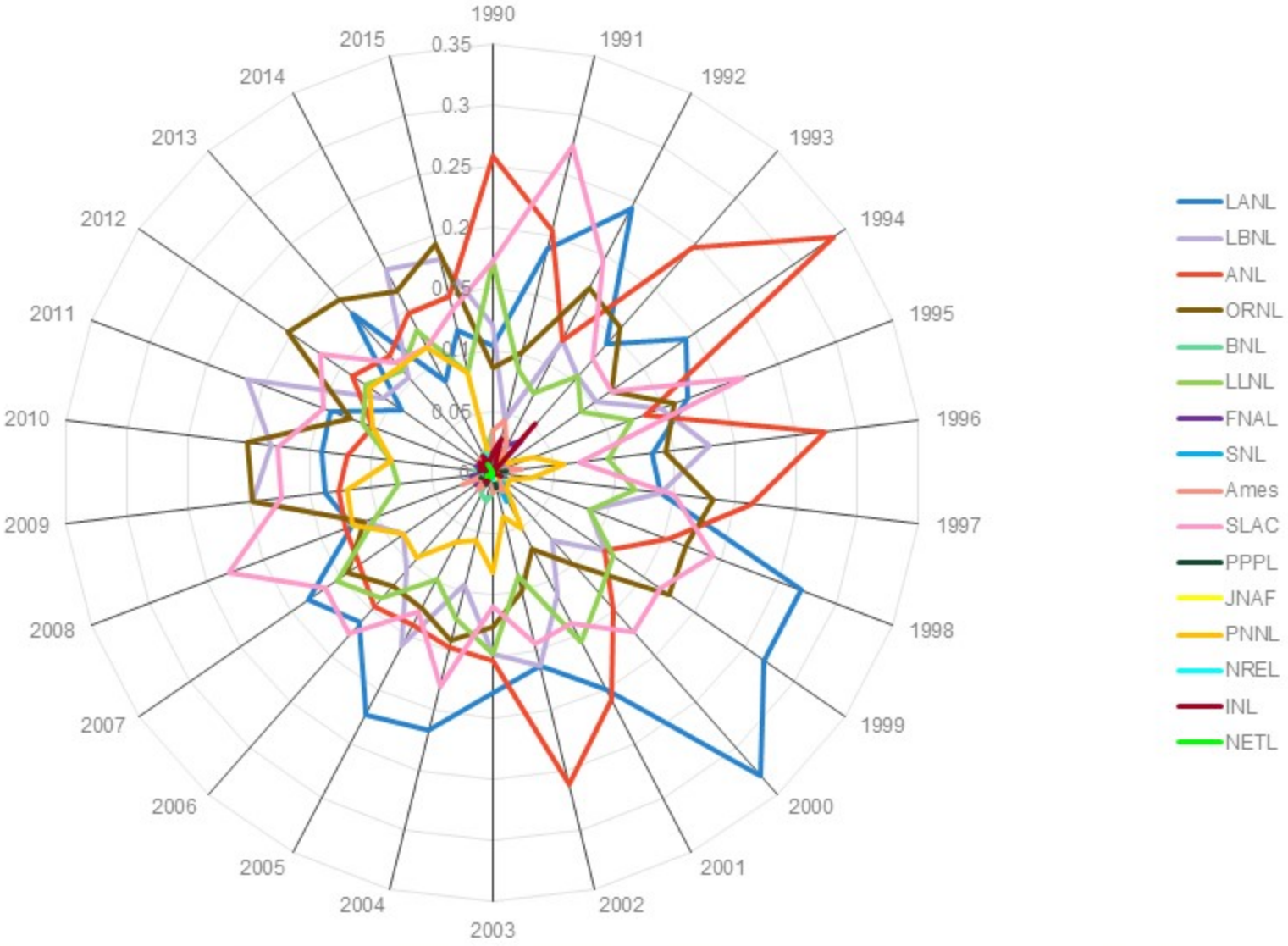
TOP 5 Institutions (based on total number of computer science peer reviewed publications)

LANL
ARGONNE
SANDIA
OAK RIDGE
LAWRENCE BERKELEY

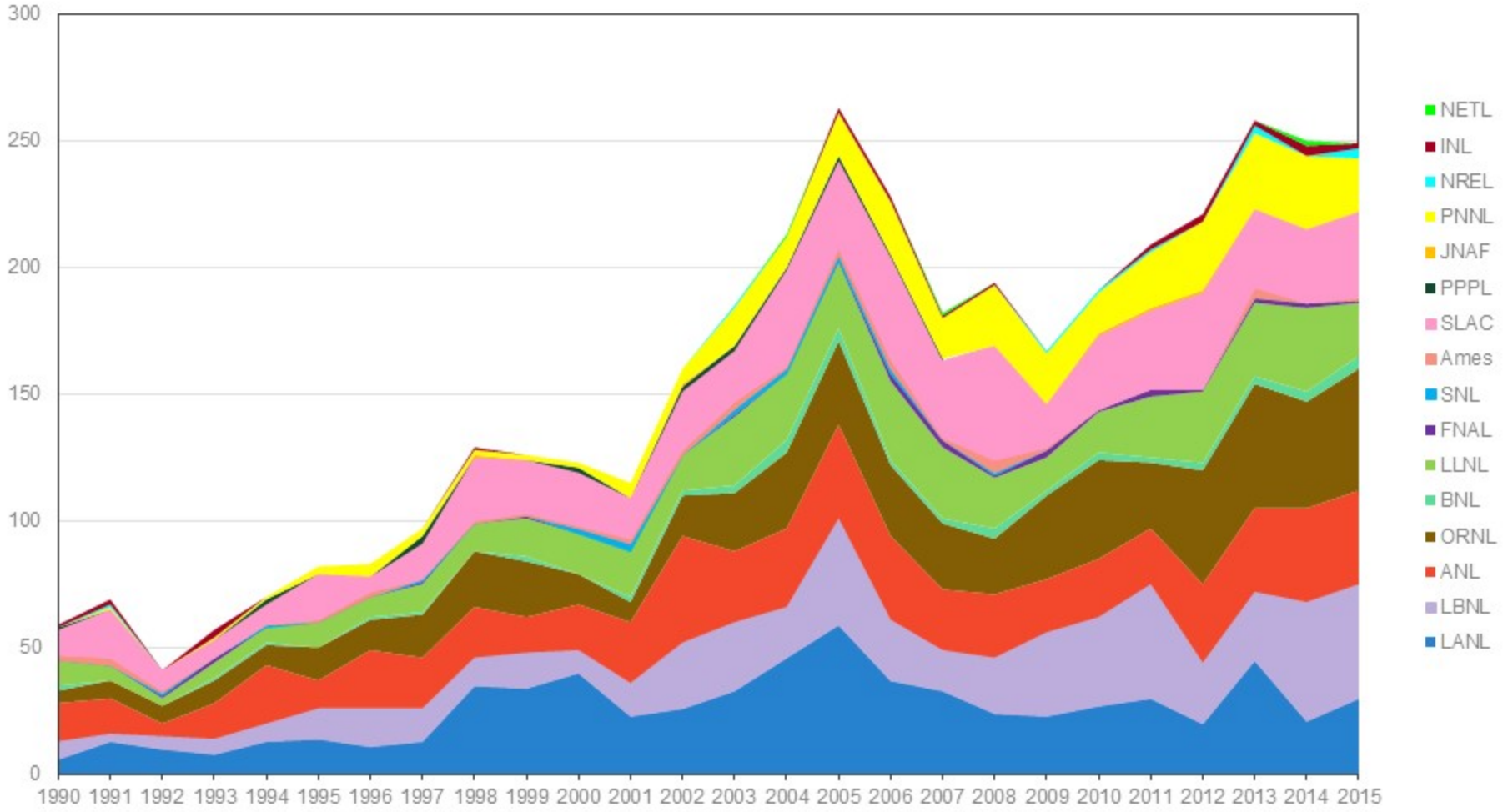
Computer Science Peer Reviewed Papers



Computer Science Peer Reviewed Paper Percentage



Computer Science Peer Reviewed Papers

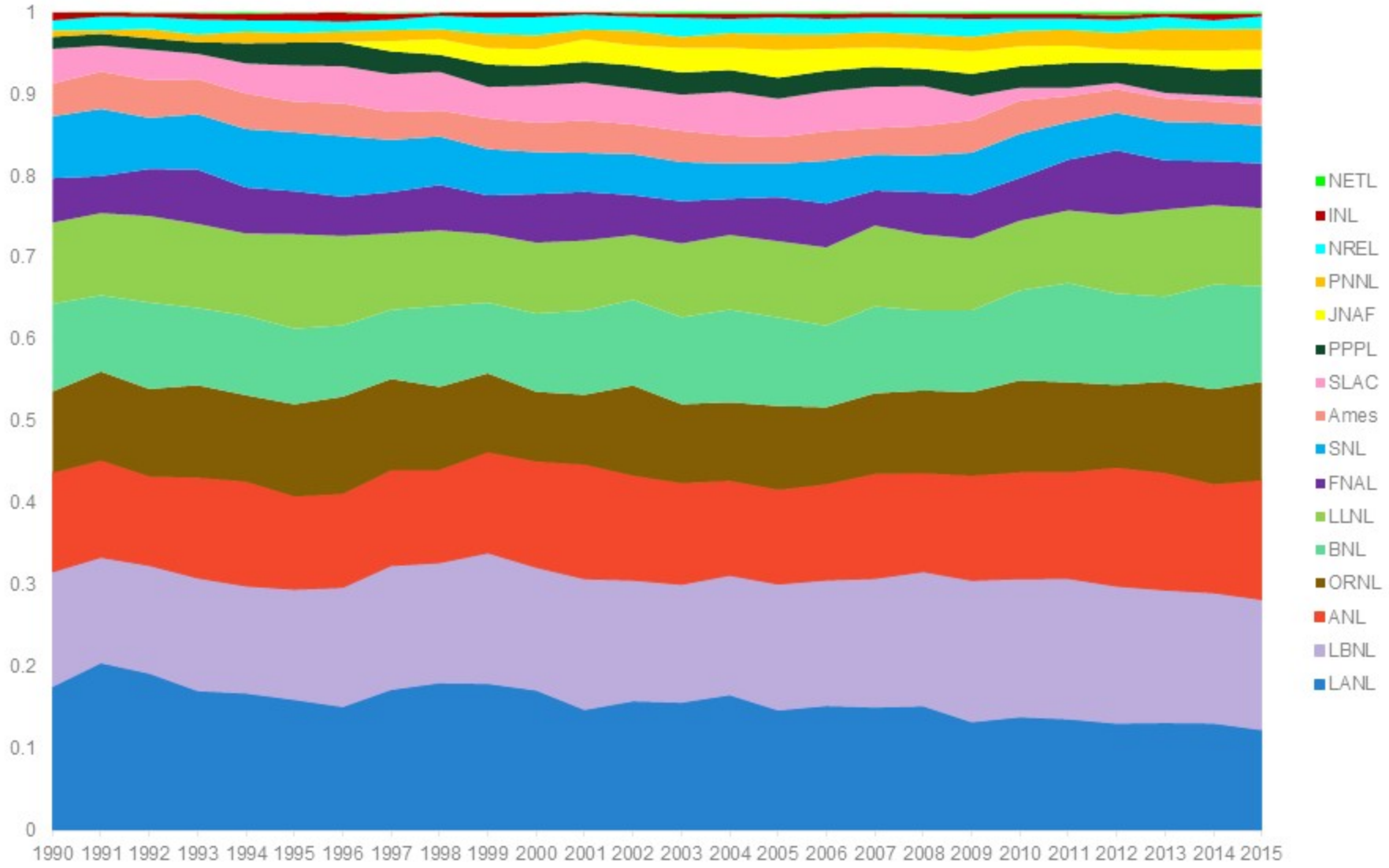


Summary

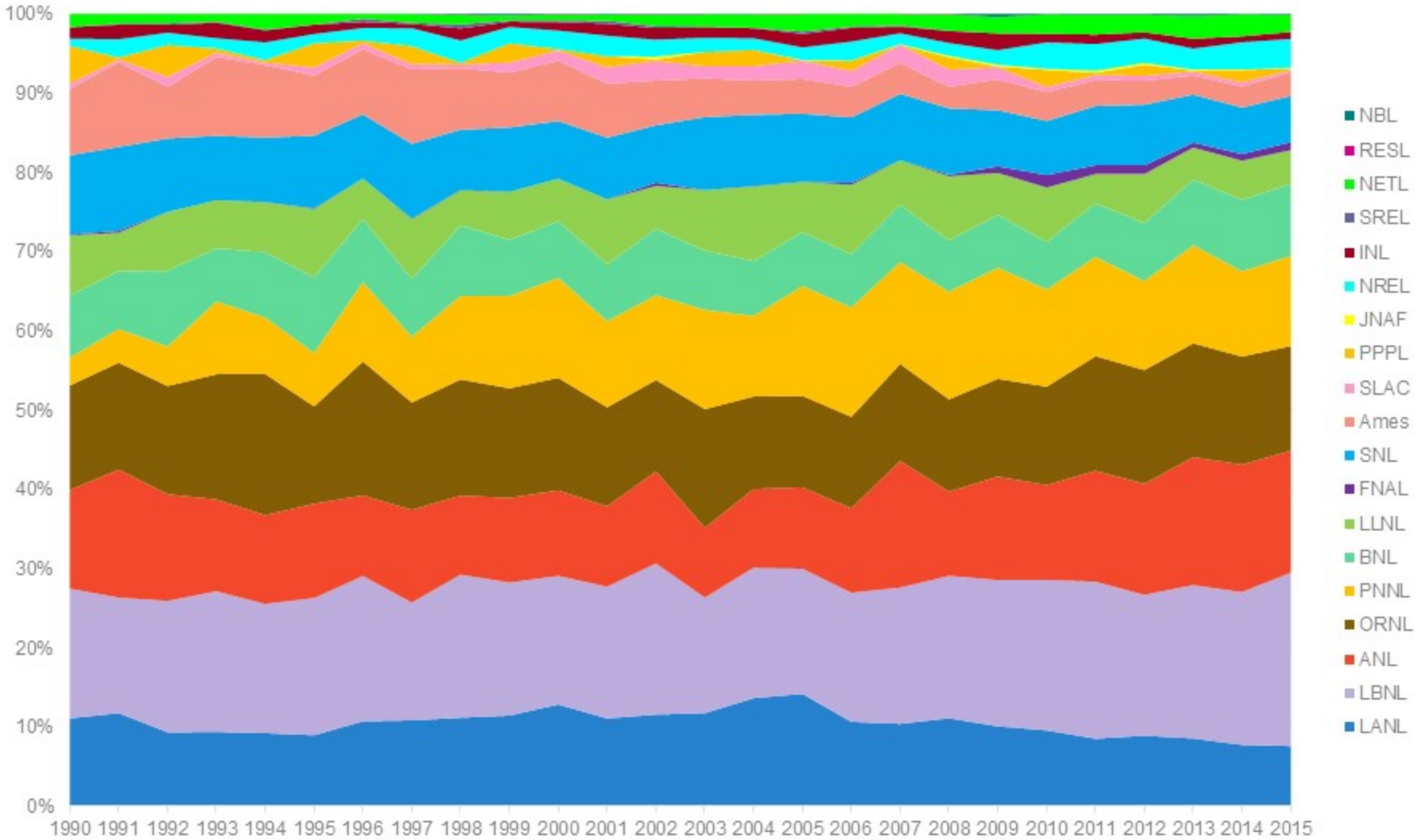
- InCites was used to examine number of peer-reviewed publications by DOE National laboratories between 1990 – 2015.
- In addition to total peer-reviewed publications, the Web of Science research categories relevant to these laboratories were also analyzed.
- In general the Office of Science laboratories (ANL, LBNL, and ORNL) are increasing their publication output over this period and especially after 2005.
- LANL area productivity has remained steady while also providing enough growth to remain in the top five DOE laboratories, despite other lab advancements.

Backup Slides

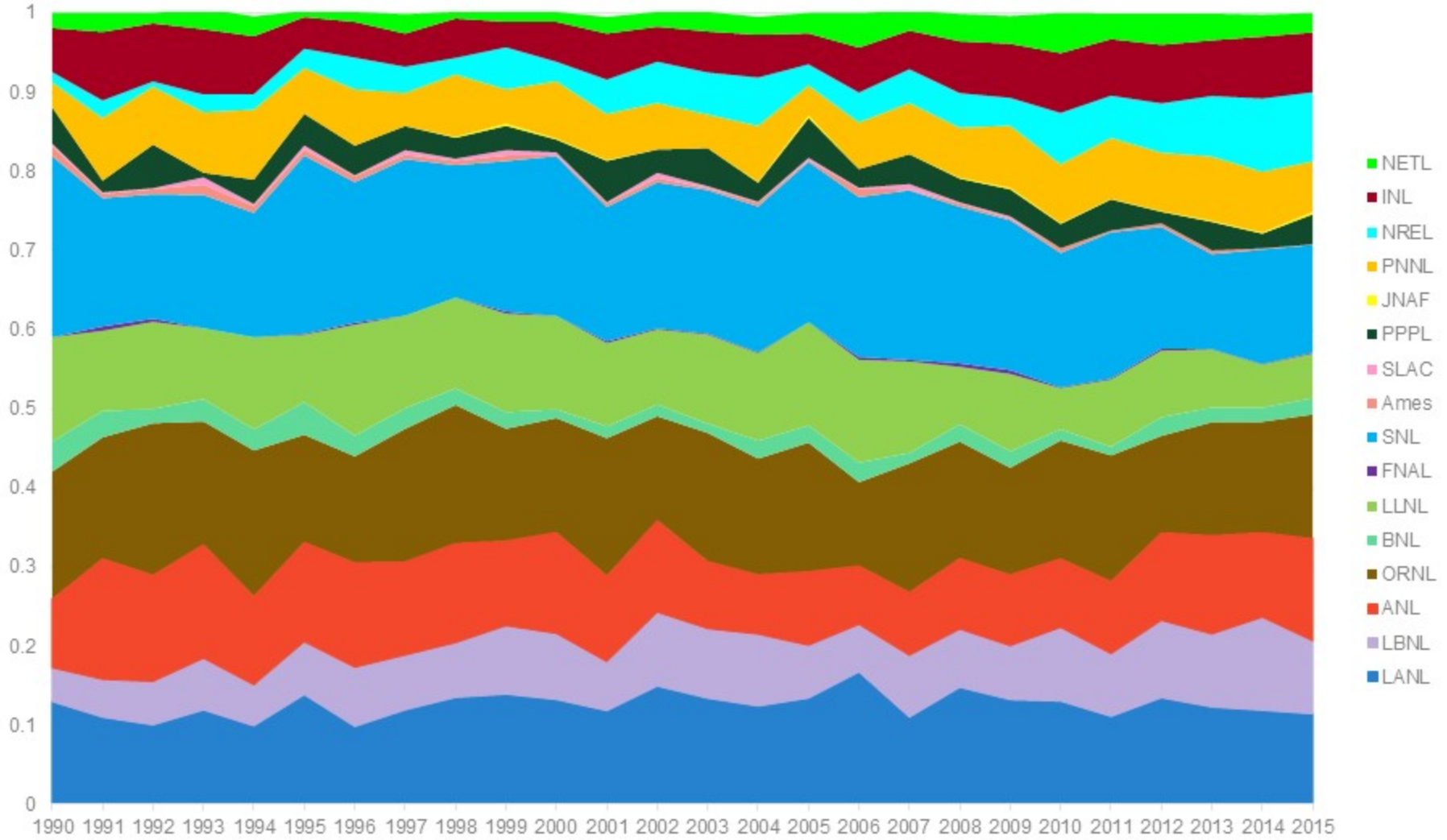
Physics Peer Reviewed Papers Percentage



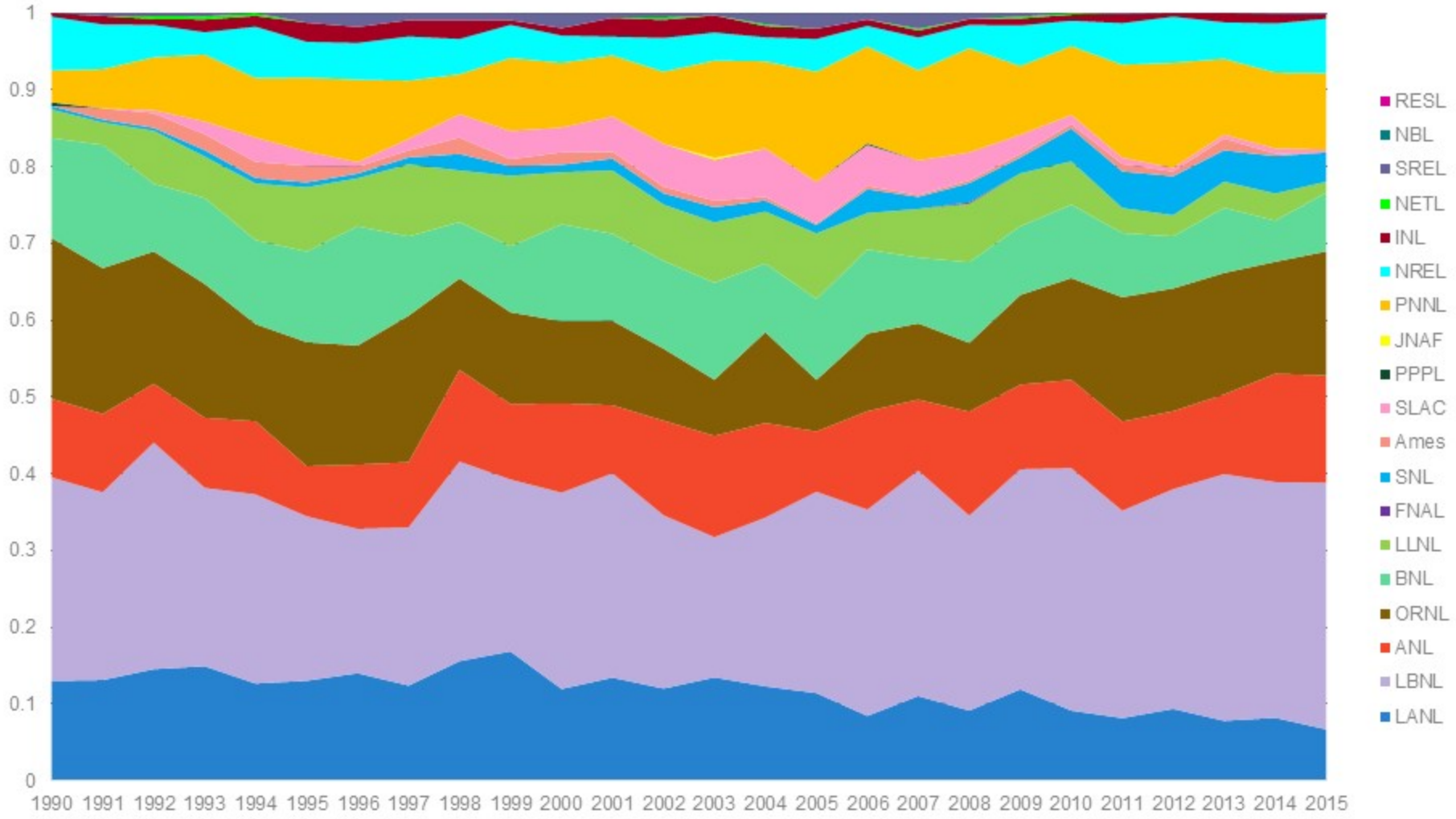
Chemistry Peer Reviewed Papers Percentage



Engineering Peer Reviewed Papers Percentage



Biology and Biochemistry
Peer Reviewed Papers Percentage



Computer Science Peer Reviewed Papers Percentage