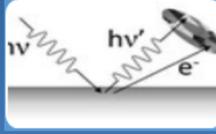


### Abstract

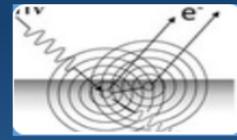
In today's world, there is plenty of data being generated from various sources in different areas across economics, engineering and science. For instance, accelerators are able to generate 3 PB data just in one experiment. Synchrotrons industry is an example of the volume and velocity of data which data is too big to be analyzed at once. While some light sources can deal with 11 PB, they confront with data problems. The explosion of data become an important and serious issue in today's synchrotrons world. Totally, these data problems pose in different fields like storage, analytics, visualisation, monitoring and controlling. To override these problems, they prefer HDF5, grid computing, cloud computing and Hadoop/Hbase and NoSQL. Recently, bigdata takes a lot of attention from academic and industry places. We are looking for an appropriate and feasible solution for data issues in ILSF basically. Contemplating on Hadoop and other up-to-date tools and components is not out of mind as a stable solution.

### Imaging

- \* computer aided tomography (CAT) Scans
- \* fullfield microscopy
- \* scanning micro/nanoprobe
- \* scanning transmission x-ray microscopy (STMX)
- \* x-ray diffraction imaging (XDI)
- \* x-ray tomography

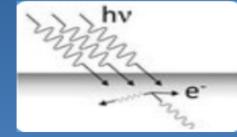


### Scattering

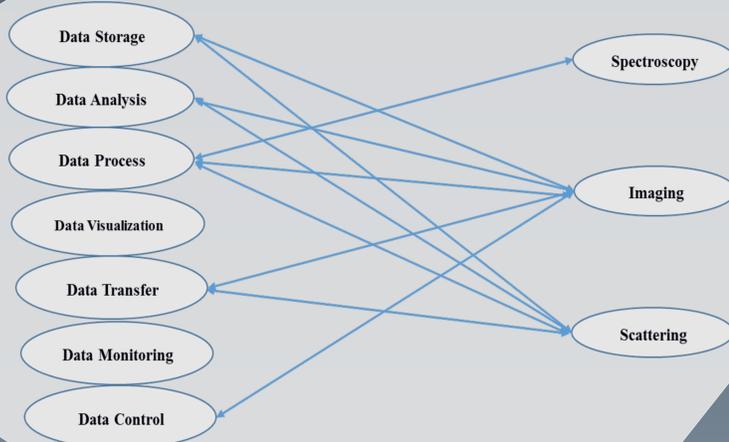


Macromolecular Crystallography  
Protein Crystallography

### Spectroscopy



Infrared (IR) spectroscopy  
Soft x-ray absorption spectroscopy (XAS)

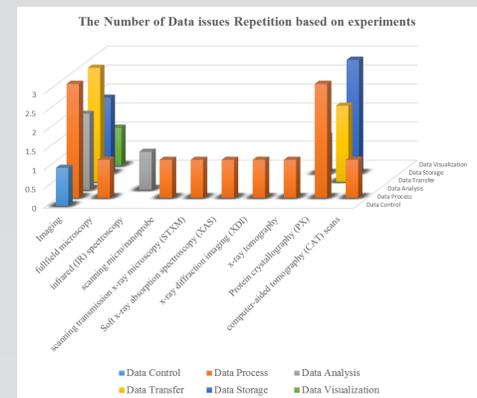


khaleghiali@ipm.ir

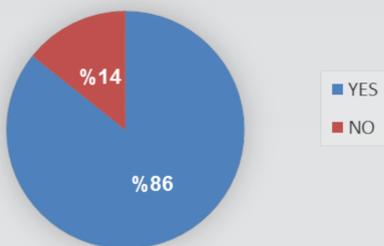
# The Study of Big Data Tools Usage in Synchrotrons

S. Alizada A. Khaleghi J. Rahighi

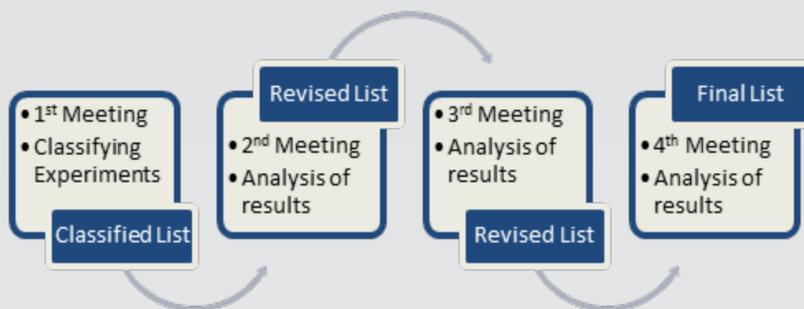
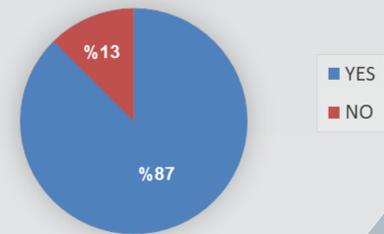
M. Jafarzadeh T. Parvini



Interested in using Big Data for future



People with Big Data knowledge



| Name    | Country   | Name          | Country     |
|---------|-----------|---------------|-------------|
| ALBA    | Spain     | INDUS1/INDUS2 | India       |
| ANKA    | Germany   | LNLS          | Brazil      |
| AS      | Australia | MAXIV         | Sweden      |
| CLS     | Canada    | NLSL          | USA         |
| DESY    | Germany   | PAL           | Korea       |
| DLS     | UK        | SAGA-LS       | Japan       |
| ELETTRA | Italy     | SLRI          | Thailand    |
| ESRF    | France    | SLS           | Switzerland |

### ACKNOWLEDGEMENT

We would like to express our deepest appreciation to all the members of Synchrotron Light Source Community who helped us in the process of this research by willingly sharing their precious time to answer the survey Questions. we are also grateful to prof. Rahighi, the manager of ILSF and control and computer divisions' staff in ILSF for sharing their pearls of wisdom with us during the research.

