

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



روش تحقیق در فیزیک

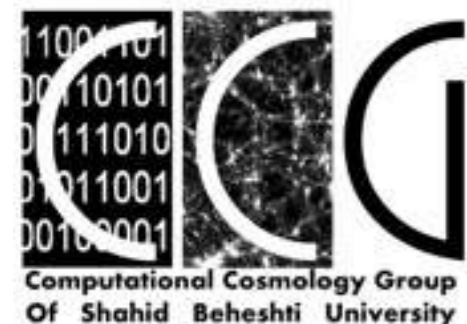
جلسه سوم (۳)

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فهرست مطالب

- (۱) بخشهای مختلف تحقیق و پژوهش
- (۲) چگونگی انتخاب موضوع پژوهش
- (۳) چگونگی جستجوی منابع



Rajasekar, S., Philominathan, P., and Chinnathambi, V., “Research Methodology”, *arXiv e-prints*, 2006. doi:10.48550/arXiv.physics/0601009.

VARIOUS STAGES OF A RESEARCH

1. Selection of a research topic
2. Definition of a research problem
3. Literature survey and reference collection
4. Assessment of current status of the topic chosen
5. Formulation of hypotheses
6. Research design
7. Data analysis
8. Interpretation of result
9. Report

I. Selection of a research topic

- Topic should be suitable for research.
- The researcher should have interest in it.
- Topic should not be chosen by compulsion from someone else.

Selection of a research topic by researcher with following advantages:

- the researcher can pursue his/her own interest to the farthest limits,
- there is an opportunity to spend a long time on something that is a continuous source of his pleasure and
- the results would prove better in terms of the growth of the investigator and the quality of the work.

Selection of a research topic by supervisor with following advantages:

- It has almost well-defined road map to pursue.
- It has almost well-defined research methodology.
- It has almost a short-cut for doing literature review

2. Definition of a research problem

Most important tasks to do:

- State the problem in questionnaire form or in an equivalent form
- Specify the problem in detail and in precise terms
- List the assumptions made
- Remove the ambiguities, if any, in the statement of the problem
- Examine the feasibility of a particular solution

The assessment of problem

Most important tasks to do:

- (1) Is the problem really interesting to him and to the scientific community?
- (2) Is the problem significant to the present status of the topic?
- (3) Is there sufficient supervision/guidance?
- (4) Can the problem be solved in the required time frame?
- (5) Are the necessary equipments, adequate library and computational facilities, etc. available?

ASSESSING THE CURRENT STATUS

Most important tasks to do:

- (1) Set up a Gantt chart
- (2) Prepared weekly (depending on the progress of research) recap and send to your supervisor
- (3) Participating in discussions in conferences, seminars and workshops based on your research

از توجه شما سپاسگزارم