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Practical Applications of Reliability Theory

Reliability Theory provides many practical applications and tools to assist with important questions which arise from the initial design to the eventual steady state operation particle accelerators. These include:

- Reliability Modeling as a tool for evaluating system performance
 - o In the design phase what are the tradeoffs of cost vs. reliability performance?
 - o In the operational phase, does the performance meet expectations?
- Analysis of the failure rate of systems or components
 - o How do systems fail?
 - o Is the failure rate “reasonable” ?
- Analytical calculation for the number of Spares
 - o What kinds of spares are there?
 - o What is a “reasonable” number of spares?

Approaches to the techniques used to answer these important questions will be discussed.

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