

PREPARE FOR REVOLUTIONARY DEVELOPMENTS

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HOW CAN ONE PREPARE?

Know what is important!

Develop the right attitude!

Identify some problems!

Start with a good theory!

Meditate and Pray!

WHAT IS IMPORTANT?

- **IMAGINATION IS THE KEY**
 - Einstein: “Imagination is much more important than knowledge.”
- **CREATIVITY IS THE KEY**
- **MOBILIZE THE SUBCONSCIOUS MIND**
- **KNOWLEDGE OF BASIC PRINCIPLES IS ESSENTIAL**
 - John Bardeen won TWO Nobel prizes in different fields, one in superconductivity, one in solid state!

ATTITUDE IS VERY IMPORTANT!

- **TRY TO IDENTIFY AND RISE ABOVE THE PREJUDICES AND BIASES OF THE EXPERTS IN THE PROFESSION**
(Dirac: “Our prejudices are the hardest thing to perceive and overcome!”)
- **BE WILLING TO BE CONFUSED**
 - Einstein: don’t jump at the first explanation

ATTITUDE!!

- **IDENTIFY SOME PROBLEMS YOU WANT TO SOLVE**
- **BE WILLING TO RISK AND TO BE WRONG (or right!)**
 - Edison considered he was “right” thousands of times when he proved many materials were not suitable filaments!!
- **PERSERVERE**
- **A SENSE OF MISSION HELPS**

POSESS BASIC KNOWLEDGE

- **WORK IN AN AREA WITH A GOOD THEORY IF POSSIBLE SO YOU CAN ANSWER “WHAT IF QUESTIONS??”**
 - Development of laser was an application of current theory.
 - Winglee’s plasma drive an em application
 - Wormholes an application of general relativity
- **ANY NEW THEORY HAS TO AGREE WITH EXISTING THEORY IN EXPERIMENTALLY VERIFIED AREAS**

QUANTUM THEORY & RELATIVITY(my interest)

- THEORY EXPERIMENTALLY VERY WELL VERIFIED
- NO KNOWN DISAGREEMENT WITH EITHER THEORY
- MAKES SOME STRANGE and CONFLICTING PREDICTIONS THAT HAVE GENERALLY BEEN IGNORED AND NOT BEEN VERIFIED

STRANGE PREDICTIONS

of QM/Relativity

- QED PREDICTS **NEAR INFINITE ENERGY DENSITY** IN EMPTY SPACE
 - described as having no physical significance in texts until very recently recently
- OUR RESEARCH QUESTION: WHAT ARE THE PREDICTED EFFECTS OF THIS ENERGY?
- CAN WE USE THIS ENERGY IN SOME MANNER CONSISTENT WITH KNOWN LAWS OF PHYSICS??

More
STRANGE PREDICTIONS
of QM/Relativity

- QM PREDICTS “NON-LOCAL”
CORRELATIONS THAT APPEAR TO
REQUIRE **FASTER THAN LIGHT**
TRANSFER OF INFORMATION
- PREDICTIONS HAVE BEEN **VERIFIED**
- OUR RESEARCH QUESTION: HOW
CAN WE MAKE USE OF THIS
PHENOMENA? FOR A
COMMUNICATION SYSTEM??

EMERGING QM/REL SCIENCE THAT MAY ENABLE REVOLUTIONARY ADVANCES IN AEROSPACE

- CARBON NANOTUBES/NANOTECHNOLOGY
- QUANTUM DOTS
- QUANTUM EXPERIMENTS ON SINGLE ATOMS/IONS/PHOTONS/MATTER WAVES
- NEW QUANTUM MEASUREMENT THEORIES AND METHODS
- WORMHOLES/ELECTROMAGNETICS AND GENERAL RELATIVITY

SERINDIPITY IS WHERE PREPARATION MEETS OPPORTUNITY!

- **IMAGINE AND PERSEVERE**
- BUT DON'T BE **UNWILLING** TO GIVE UP ON AN IDEA THAT **EVIDENCE** PROVES TO BE A DEAD END
- OTHER IDEAS ARE WAITING