



Alvin and Muons

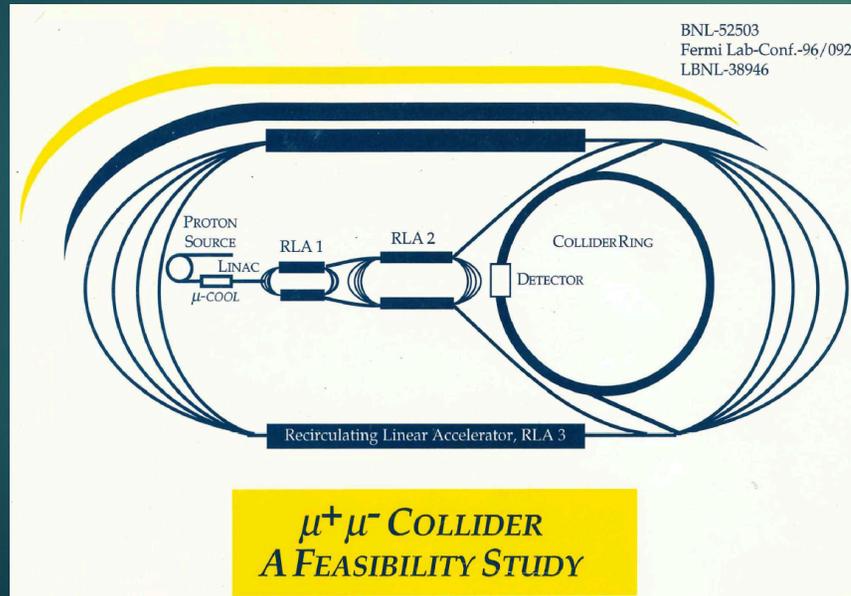
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Looking at a Novel Collider Concept

- ▶ Alvin was always on the lookout for transformative technologies
- ▶ And for novel physics opportunities



IEEE TRANSACTIONS ON MAGNETICS, VOL. MAG-17, NO. 1, JANUARY 1981

CARE AND TRAINING OF SUPERCONDUCTING MAGNETS

Training

Superconducting magnets are notorious for the wide gap between the performance that is predicted on paper and that which is achieved for produced magnets. In the early years before multifilament conductors became available, many of the difficulties were associated with flux instabilities. However, the availability of this type of conductor solved this problem, and yet W. P. Smith[†] at RHEL still reported training and degradation in magnets built with such superconductor.

SUPERCONDUCTING MAGNET TECHNOLOGY FOR ACCELERATORS*

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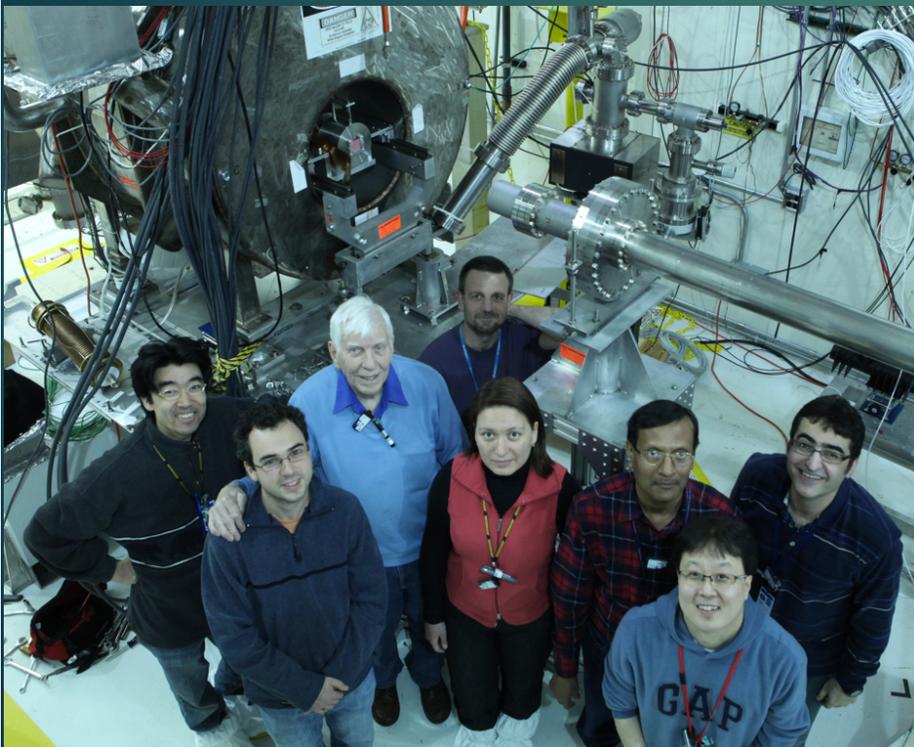
March 1984

Parameter	Value	Parameter	Value
Muon Energy	50 GeV	γ	473.22
spin precession in one turn	3.4667 radians	Magnetic field	4.0 Tesla
radius of ring	41.66666 meters	beam circulation time	0.87327E-06 sec
dilated muon life time	0.10397E-02 sec	turn by turn decay constant	0.8399E-03

Raja & Tollestrup – Calibrating a $\mu^+\mu^-$ Higgs Factory using spin precession

TABLE I. Parameters of an idealized muon storage ring

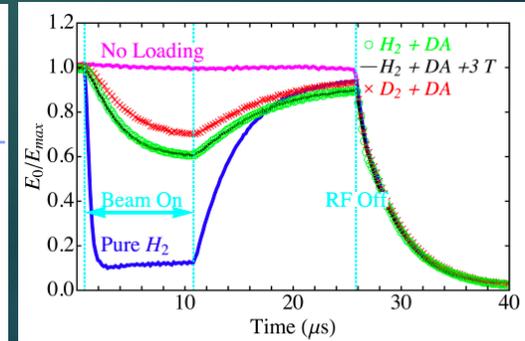
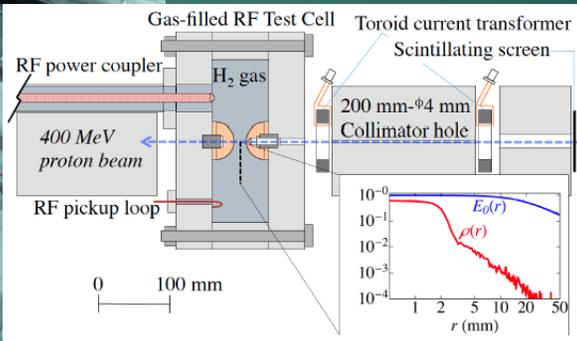
Developing Technology & the Teams to Drive Progress



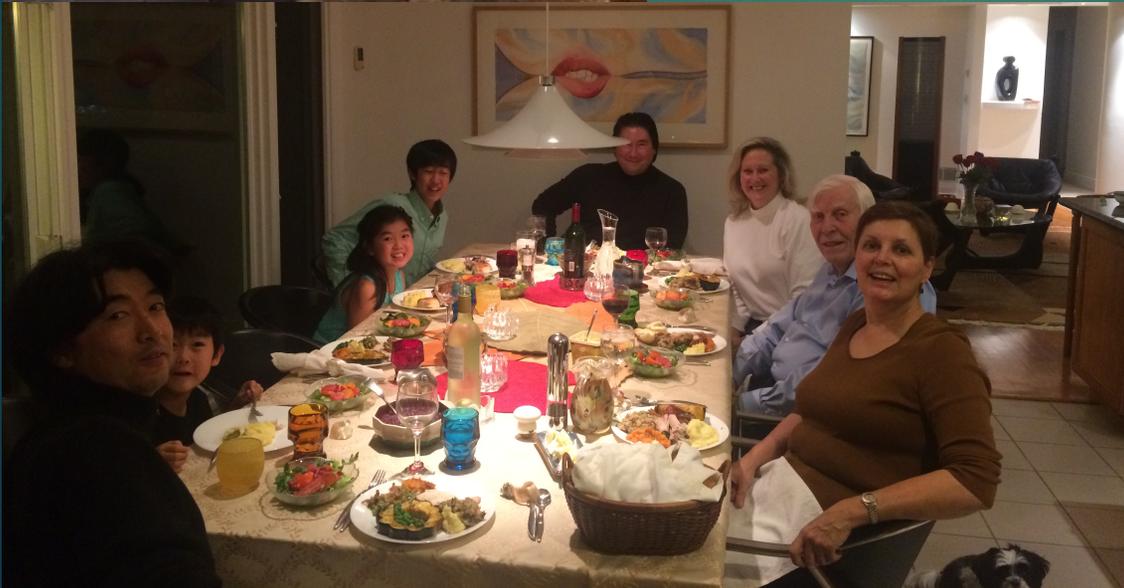
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Pressurized H_2 rf Cavities in Ionizing Beams and Magnetic Fields

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Alvin –
We will miss you!

