

Amerika, Oxford, plazma.

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F7900 Studentský seminár

22. október, 2012



Obsah

1 ISEP

- Výmenný program
- Náklady ISEP

2 Amerika

- Utah State University
- Plazma
- The Road Trip

3 Oxford

Prečo vycestovať

- 1 zdokonaliť sa v jazyku
- 2 spoznať nové akademické prostredie
- 3 nadviazať kontakty s ľuďmi z celého sveta
- 4 cestovať
- 5 som mladý a nikdy sa mi podobná príležitosť nemusí naskytnúť!









International Student Exchange Program

- vznikol v roku 1979 v rámci Fulbright-Hays Act
- spája vyše 300 univerzít z 50 krajín sveta
- zaplatíš doma a dostaneš vonku: ubytovanie, stravu, školné + poplatok
- najľahšia cesta ako študovať v Amerike, Afrike, Austrálii alebo Ázii

Podmienky ISEP-u

- byť neustále študentom univerzity
- zaplatiť príspevok na prichádzajúceho študenta
- prihláška, 2x motivačný list, jazyková skúška, 2x odporúčanie
- zoznam až 10 univerzít podľa osobných preferencií



Náklady ISEP

štipendium od MŠMT	8.5x 10 000 Kč / mesiac
príspevok na študenta	2x 36 500 Kč
letenka	2x 19 000 Kč
TOEFL iBT	\$180
vízum F1	\$150
SEVIS	\$180
ISEP poplatok	\$360
zdrav. poistenie	10x \$56

Let



Utah, USA

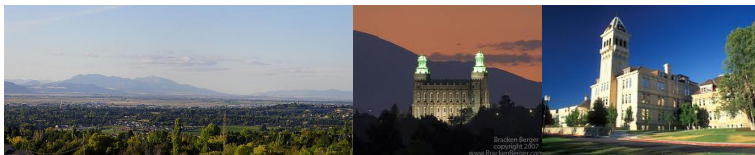


- 2.8 mil. obyvateľov, 220 tis. km²
- hlavné mesto – Salt Lake City (1.2 mil., ZOH 2002)
- 63% populácie sú Mormoni (LDS)
- 5 národných parkov – Arches, Bryce, Canyonlands, Capitol Reef, Zion



Logan, Utah

- 50 000 obyvateľov, Cache Valley – 125 000 obyv.
- 130 km severne od SLC
- objavená v r. 1818, obývaná v r. 1852
- 80% populácie sú Mormoni
- jedno z miest s najnižšou kriminalitou v USA





Utah State University



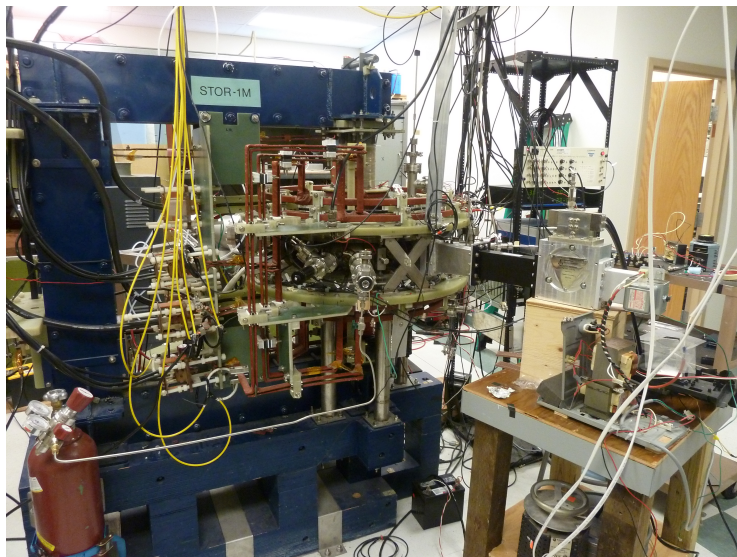
- založená v r. 1888 ako Utah's agricultural college
- v 1957 premenovaná na USU
- cca. 29 tis. študentov
- zameriava sa predovšetkým na poľnohospodárstvo, inžinierstvo, učiteľstvo, space sciences
- nick: Aggie, maskot Big Blue







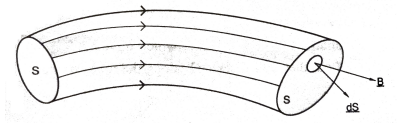
STOR-1M



What is a magnetic flux rope?

Magnetic flux tube:

- volume bounded by mag. field intersecting a closed curve
- magnetic flux is constant

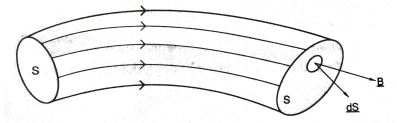


(Priest,1990)

What is a magnetic flux rope?

Magnetic flux tube:

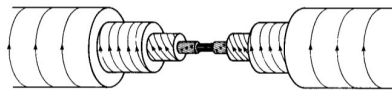
- volume bounded by mag. field intersecting a closed curve
- magnetic flux is constant



(Priest,1990)

Magnetic flux rope:

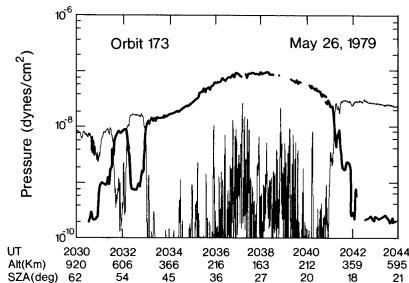
- a twisted flux rope
- easy way to get particle, plasma and heat flow
- carry momentum and mag. energy



(Russell,1990)

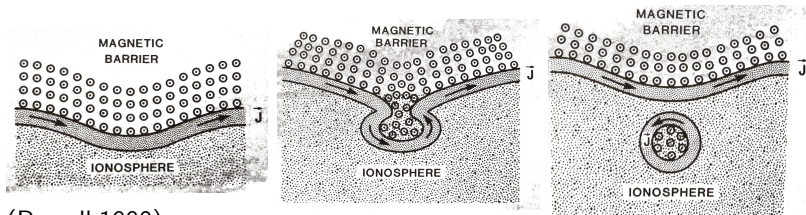
Flux ropes in Venus ionosphere

- Venus has no intrinsic magnetic field, comes
- ionosphere produced by photoionization
- separate flux ropes with diameters approx. 20–30 km
- quasi–force–free filamentary helical magnetic ropes



(Elphic, 1981)

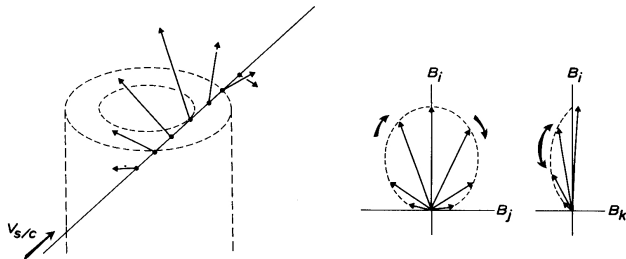
Creation of a flux rope



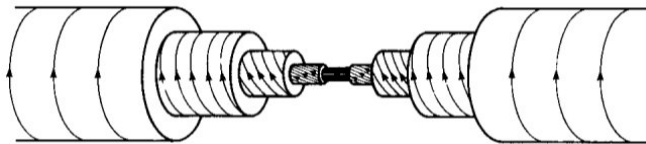
(Russell, 1990)

Structure of a flux rope

Inner structure can be described by Bessel polynomials.



(Elphic, 1981)



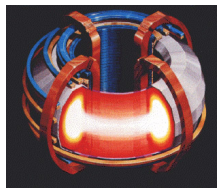
(Russell, 1990)

Self-organized state of plasma

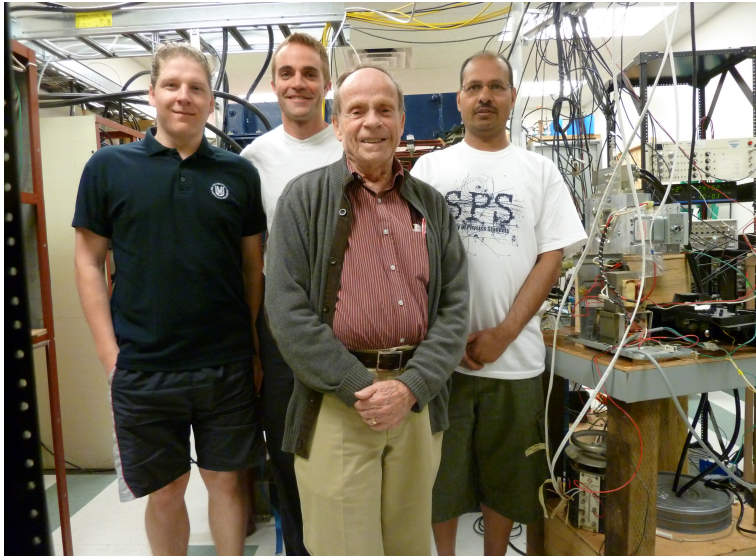
Research under Dr. W. F. Edwards:

rescale of Venus flux rope into single cylinder (torus)

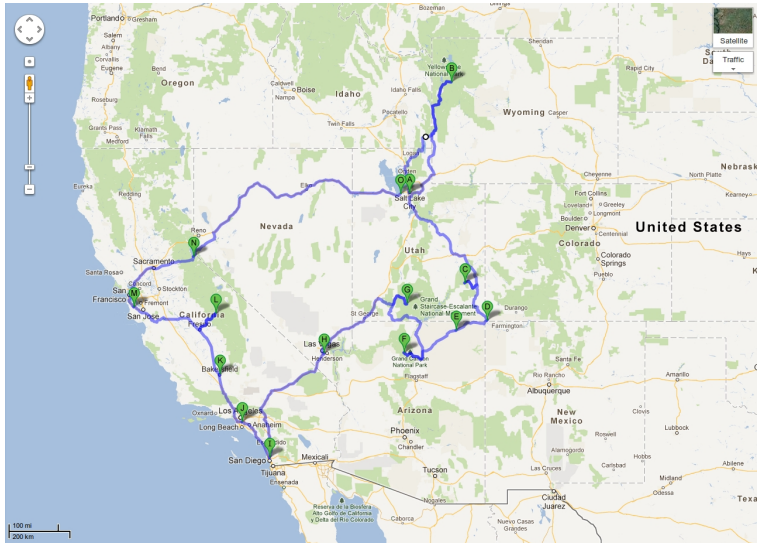
- plasma parameter $\beta \approx 1$
- weak mag. field $B_t \approx 20 \text{ G} = 2 \text{ mT}$
- MW plasma in hydrogen gas
- electron density $n_e \approx 5 \times 10^{16} \text{ m}^{-3}$
- electron temperature $T_e \approx 5 \text{ eV}$
- so that: skin depth $\Lambda_e = \sqrt{\frac{m_e}{\mu_0 n_0 e^2}} \approx a$
(a =minor radius of torus)



Plasma Physics Lab

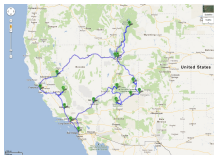


The Road Trip



The Road Trip

- 24 dní
- 5000 míľ = 8000 km
- asi zilión zážitkov
- Yellowstone, Arches, Caynonlands, Zion, Bryce, Yosemite, Sequoia, ...
- Salt Lake City, Las Vegas, San Diego, Los Angeles, San Francisco, Pasadena, Palo Alto, ...





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