

# ***Honouring Bob Cywinski***

The Story of His Contributions to

*Muon Spin Rotation/Relaxation/Resonance*

*Neutron & X-ray Scattering*

*ns-FFAG Accelerators*

*and Thorium Reactors*

according to

*Jess H. Brewer*

**TRIUMF** and Dept. of Physics & Astronomy, Univ. of British Columbia

**You know I'm kidding, right?**

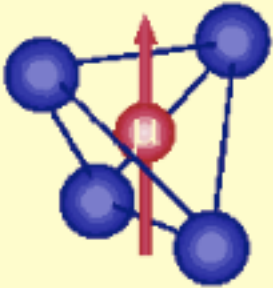

ACTUAL TITLE:


*“What can I possibly say?”*

ACTUAL OUTLINE:

★ **NATO Advanced Study Institute on  
Muon Science**  
*St. Andrews, Scotland, 1998*

★ **A Tribute(?) in Song**

	<p>A NATO ADVANCED STUDY INSTITUTE ON:.</p> <h1>MUON SCIENCE</h1> <p><i>MuSR in physics, chemistry and materials.</i>  <b>SUSSP 51: A Scottish Universities Summer  School in Physics</b>  Co-sponsored by SUSSP and CLRC</p>	
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	<p><b><i>WELCOME TO SUSSP51:  THE MUON SCIENCE SUMMER  SCHOOL</i></b></p> <p><b>THE UNIVERSITY OF ST ANDREWS  SCOTLAND</b></p>				
<p><a href="#"><u>Main Page</u></a></p>	<p><a href="#"><u>Lecture Notes</u></a></p>	<p><a href="#"><u>The Organisers</u></a></p>	<p><b>St Andrews and Scotland</b></p>	<p><a href="#"><u>Photographs of Participants at the School</u></a></p>	<p><a href="#"><u>List of Participants</u></a></p>





**Director: Professor Bob Cywinski**

Bob's principal interests are the structural, magnetic and transport properties of metals, alloys and compounds, in both crystalline and amorphous forms. His particular expertise is in neutron scattering and muon spin rotation and relaxation (MuSR) techniques. He and other members of his group have strong links with international neutron and muon beam facilities, particularly at [ILL](#) and [ISIS](#). Bob is currently UK Delegate to, and ViceChairman of, the European Neutron Scattering Association ([ENSA](#)); a committee member of the Neutron Scattering Group of the Institute of Physics and Royal Society of Chemistry; a member of the Engineering and Physical Science Research Council ([EPSRC](#)) Physics Peer Review College; Chairman of Magnetic Diffraction selection panel (College 5b) of the Institut Laue Langevin, and a member of the programme committee of the international conference, MuSR'99.



**Treasurer: Dr Sue Kilcoyne**

Before moving to St Andrews Sue played a major role in constructing, commissioning and running the EU Muon Beam Facility at the [ISIS](#) Pulsed Neutron and Muon Source. She was also the Instrument Scientist responsible for the MuSR Spectrometer. While at ISIS she was secretary to the ISIS Muon Beam Experiment Selection Panel, and has frequently chaired the Muon Syndicate Sessions at the annual UK Neutron and Muon Beam Users Meeting (NBUM). Sue's principal interests are the structural and magnetic properties of alloys, compounds, and biomagnetic systems. She has particular expertise in neutron diffraction, muon spin rotation and relaxation techniques, and Mossbauer spectroscopy.



**Secretary: Dr Steve Lee**

Steve is an EPSRC Advanced Research Fellow and Lecturer Designate in the School of Physics and Astronomy. Steve came to the University of St Andrews in October 1995. He had previously held the position of Research Fellow at the Physik Institut der Universitat Zurich. Steve's main research interests are the structure and dynamics of the flux line lattice in high temperature and other superconductors, probed principally with muon spin rotation and small angle neutron scattering techniques at [ISIS](#), [PSI](#) and [ILL](#). Steve is also developing a novel, ultra-sensitive, nanotorque magnetometer for the study of both magnetic clusters and anisotropic superconductivity in microcrystals of cuprate and other superconductors.

**International Advisors: Professor Ian Campbell (Paris) and Professor Migg Roduner (Stuttgart)**

# *Time Dilation*

*Parity Violation in the Weak Interaction* was discovered in  
**1957.**

It seemed like *ancient history* when we began to *utilize* it in  
**1975,**  
**18** years later.

**SUSSP 51** was **18** years ago.  
*It seems like yesterday!*



# *About Bob...*

- Brilliant Scientist
- Adept Administrator
- Eloquent Spokesman
- Indefatigable Promoter
- Passionate & Skilled Didact
- Discriminating Gourmand
- Gracious Host & Nice Guy
- Musical Impresario & Performer
- Good Looking... *and Humble, too!*

# It's Hard to be Humble

Mac Davis

Oh Lord it's hard to be humble  
when you're perfect in every way.  
I can't wait to look in the mirror  
cause I get better looking each day.  
To know me is to love me  
I must be a hell of a man.  
Oh Lord it's hard to be humble  
but I'm doing the best that I can.

Heart of Thor  
(apologies to Neil Young)

$$Em \quad D \quad Em$$

*Em* *C* *D* *G*  
 You wanna bet, I'm gonna get,  
*Em* *C* *D* *G*  
 a new reactor with a heart of Thor.  
*Em* *C* *D* *G*  
 There's some investor I haven't met yet  
*Em* *G*  
 who's gonna set me up a heart of Thor,  
*C* *Bm* *Am* *G*  
 in a reactor core.  
*Em* *G*  
 Gonna set me up a heart of Thor,  
*C* *Bm* *Am* *G*  
 in a reactor core.

Em C D G  
I've been to Parliament, I spoke at TED-x,  
Em C D G  
I'd cross the ocean for a heart of Thor,  
Em C D G  
I gave them my line, it's such a fine mind  
Em G  
that keeps me searchin' for a heart of Thor,  
C Bm Am G  
in a reactor core,  
Em G  
Keeps me searchin' for a heart of Thor,  
C Bm Am G  
in a reactor core.

*Em* Keep me waitin' for a heart of Thor,  
*D* You keep me waitin' and I'm growin' sore.  
*Em* Keep me waitin' for a heart of Thor,  
*D* I'm a promoter for a heart of Thor...ium.



# JeruCywinski

(apologies to William Blake and all who love his famous hymn)

And did those feet in ancient time  
Walk upon England's mountains green?  
And was the helpful hand of Bob  
In Melbourne's gum tree forests seen?  
And did the countenance of Bob  
Shine forth upon the Scottish hills?  
Or will the ESS be builded here  
Among those dark satanic mills?

Bring me my beams of muons bold!  
Bring me my neutrons of desire!  
Bring me my THOREA foretold!  
Bring me my FFAG fire!  
I will not cease from mental fight;  
Nor shall my sword sleep in my hand  
(That's one line I just couldn't mess with!)  
Till we have built the ESS  
In England's...  
... (okay, or Sweden's)  
...green and pleasant land.

## Fission Blues

(apologies to Taj Mahal)

Betcha' stoppin' muons all of the time,  
Baby's stoppin' muons too.  
Bet your life, your sweet wife  
Is gonna stop more Mu than you.

Many Mu stop if you got good beam.  
Here's a little tip for the muon team:  
Many Mu stop if you got good beam.  
I'm 'a stoppin' muons, yes I'm stoppin' muons,  
And my buddy's stoppin' muons too.

I went on down to my fav'rit counting room,  
You know I took along some friends of mine.  
Threw my sample on in, got some nice new data,  
Now I took it on home and it fit just fine,

Provin' any Mu fits if you got good beam.  
Here's a little tip for the muon team:  
Any Mu fits if you got good beam.  
I'm 'a stoppin' muons, yes I'm stoppin' muons  
And my buddy's stoppin' muons too.

Grad students 'bout to run me out'a my mind,  
Sayin', "Can I stop muons with you?"  
Well, I took 'em on down to the muon beam,  
Now what do you think that they did do?  
Pulled a great result out the end of the beam,  
Now they laughed and jumped 'cause they was Ph.D.'s!

Many Mu stop if you got good beam.  
I'm 'a stoppin' muons, yes I'm stoppin' muons,  
And my buddy's stoppin' muons too.

Put it in the 'puter, honey, plot it on the screen,  
You know you fit it 'til it's nice an' clean.  
Make a mess o' models and you write 'em all up,  
An' you send them things to the magazine,

Singin' many Mu stop if you got good beam.  
Here's a little tip for the muon team:  
Many Mu stop if you got good beam.  
I'm 'a stoppin' muons, yes I'm stoppin' muons,  
And my buddy's stoppin' muons too.  
Play dem blues...

(short instrumental)

Betcha' stoppin' muons all of the time,  
Baby's stoppin' muons too.  
Bet your life, your sweet wife  
She gonna stop more Mu than you.

Many Mu stop if you got good beam.  
Oh, here's a little tip for the muon team:  
Many Mu stop if you got good beam.  
I'm 'a stoppin' muons, mama's stoppin' muons  
And my buddy's stoppin' muons too.

# My Talking Schtick

## apologies to Leon Redbone

*Em Am Em B7 Em ... Em Am Em B7 Em*

*Em Bbdim7 Bbdim7 Bbdim7 B7 Em ... Em Bbdim7 Bbdim7 Bbdim7 B7 Em*

*Em Bbdim7*  
Without my talking schtick, I'd be inane.  
*B7 Em*  
I couldn't think my best, I'd feel depressed without my brain.  
*Em Bbdim7*  
Must take my talking schtick on down the lane.  
*B7 Em*  
I'm giving tours upon the moors and higher planes.

*Am*  
If I ever left my house without my talking schtick,  
*Em F# B7*  
You know that would be something I could never explain;  
*Em Bbdim7*  
Oh the thing that makes me click on lovers' lane,  
*B7 Em*  
Would go for naught if I were caught without my brain.

*Em B7*  
Be-bop-bop-de-la-dum; Be-bop-a-da-bum,  
*Em*  
Re-bop-be-ay; Rop-a-de-bop; Rump-a-de-dum; Ra-da-da-day  
*B7*  
Re-bop-bop-la-da-dum; Re-bop-be-de-ay  
*Em*  
Rop-a-de-bum; Rop-a-de-bum; Deet-de-de-day; Ra-da-da-dum

*Em Bbdim7 Bbdim7 Bbdim7 B7*

### CHORUS

*Em Am Em B7 Em ... Em Am Em B7*

*D7 Gm*