The many faces of Donald Wayne Kurtz: Don's distinguished career in Texas (1970 - 1976)




Michel Breger
University of Texas at Austin

Donald Kurtz

From Wikipedia, the free encyclopedia

Donald Wayne Kurtz (1948 –) is an astronomer known for his research into asteroseismology. He completed his PhD in astronomy at the University of Texas in 1976 before moving to Cape Town, where he became a professor at the University of Cape Town. After 25 years in South Africa, he moved to the UK where he now teaches at the University of Central Lancashire.

Donald Kurtz	
Fields	Astronomy
Institutions	University of Cape Town, University of Central Lancashire
Alma mater	University of Texas
Known for	Asteroseismology

He discovered a new class of pulsating, strongly magnetic stars (the Rapidly oscillating Ap stars), sits on the boards of numerous astronomical projects, and was President of the International Astronomical Union Commission on Variable Stars.[1]

References [edit]

1. ^ http://www.ems.uct.ac.za/files/file/Kurtz.pdf

Categories: Living people | American astronomers | 1948 births

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PROFESSOR

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FULL PROFILE

Don Kurtz was born in San Diego, California to an American father and Canadian mother. He obtained his PhD in astronomy from the University of Texas at Austin in 1976, then spent 25 years in South Africa at the University of Cape Town from postdoc to professor. Since 2001 he has been Professor of Astrophysics at the University of Central Lancashire in the UK.

Don observes with some of the largest telescopes in the world, has over 2000 nights at the telescope. He is the discoverer of a class of pulsating, magnetic stars that are the most peculiar stars known, the rapidly oscillating Ap stars.

He is a member of the steering committee of the Kepler Asteroseismic Science Consortium, and is co-author of the fundamental textbook, “Asteroseismology”. He is past-president of the International Astronomical Union Commission on Variable Stars.

Don is an outdoorsman and has travelled widely. He enthusiastically gives public lectures to diverse audiences all over the world on a wide range of topics.

Qualifications:
Ph.D. Astronomy, University of Texas, 1976
M.A. Astronomy, University of Texas, 1972
B.A. Astronomy and Physics, San Diego State University, 1970

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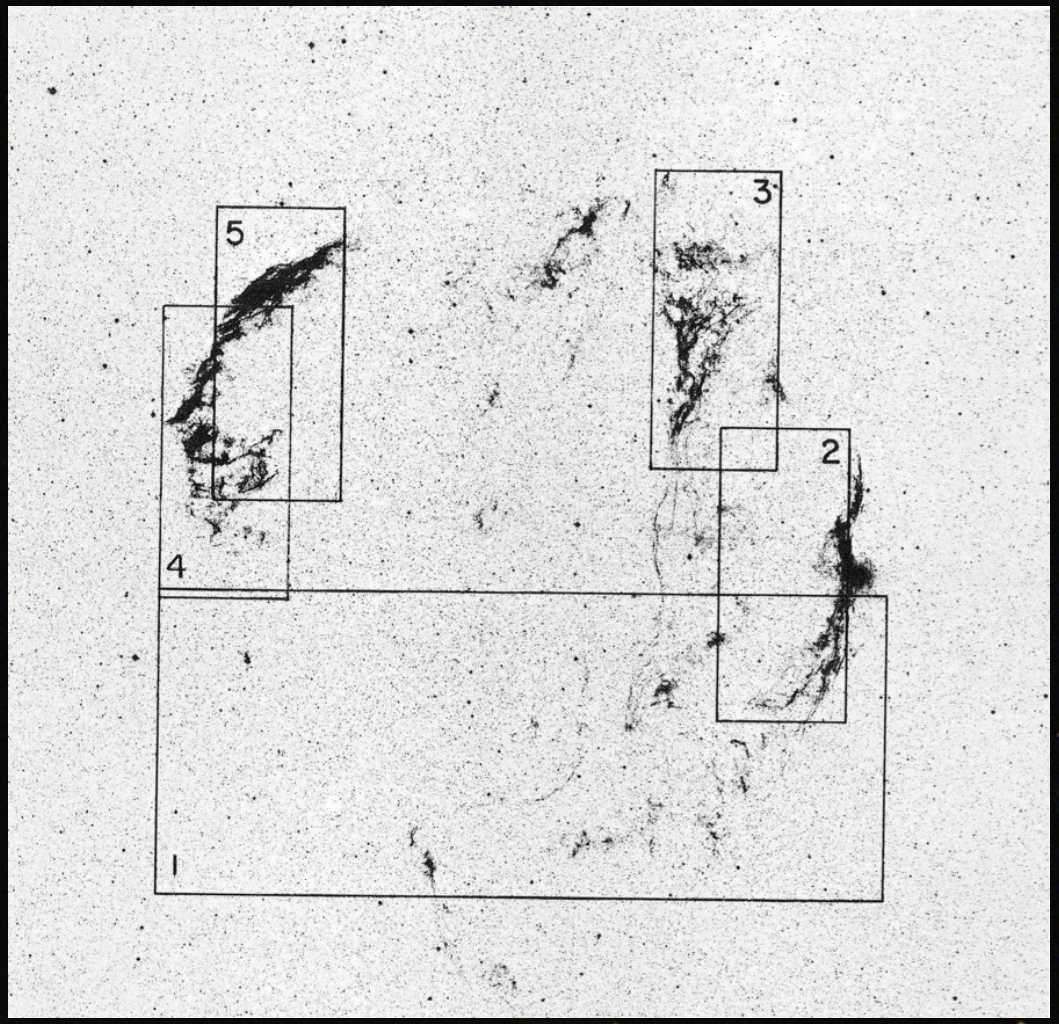
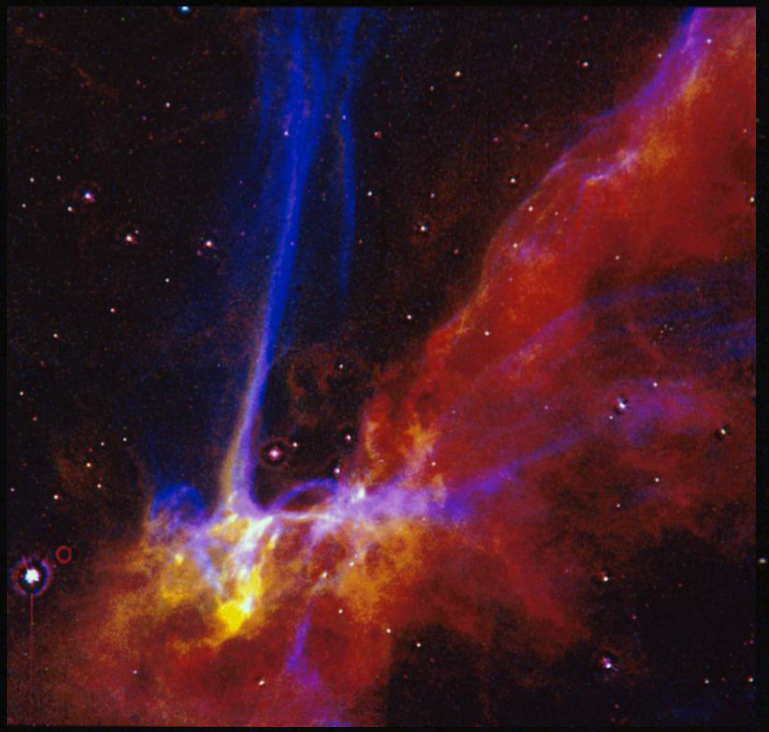
2	2016MNRAS.tmp.1085H Hambleton, K.; Kurtz, D. W.; Prša, A.; Quinn, S. N.; Fuller, J.; Murphy, S. J.; Thompson, S. E.; Latham, D. W.; Shporer, A.	1.000 KIC 3749404: A Heartbeat Star with Rapid Apsidal Advance Indicative of a Tertiary Component	08/2016	A E F X R U
3	2016MNRAS.460.1970B Bowman, Dominic M.; Kurtz, Donald W.; Breger, Michel; Murphy, Simon J.; Holdsworth, Daniel L.	1.000 Amplitude modulation in δ Sct stars: statistics from an ensemble study of Kepler targets	08/2016	A E F X D R C O U
4	2016AJ....152...41P Prša, Andrej; Harmanec, Petr; Torres, Guillermo; Mamajek, Eric; Asplund, Martin; Capitaine, Nicole; Christensen-Dalsgaard, Jørgen; Depagne, Éric; Haberreiter, Margit; Hekker, Saskia; and 12 coauthors	1.000 Nominal Values for Selected Solar and Planetary Quantities: IAU 2015 Resolution B3	08/2016	A E F X R C U
5	2016A&G....57d4.37K Kurtz, Don; Jeffrey, Simon; Aerts, Conny	1.000 Starquakes spring stellar surprises	08/2016	A E R U

Don was a graduate student at the University of Texas at Austin

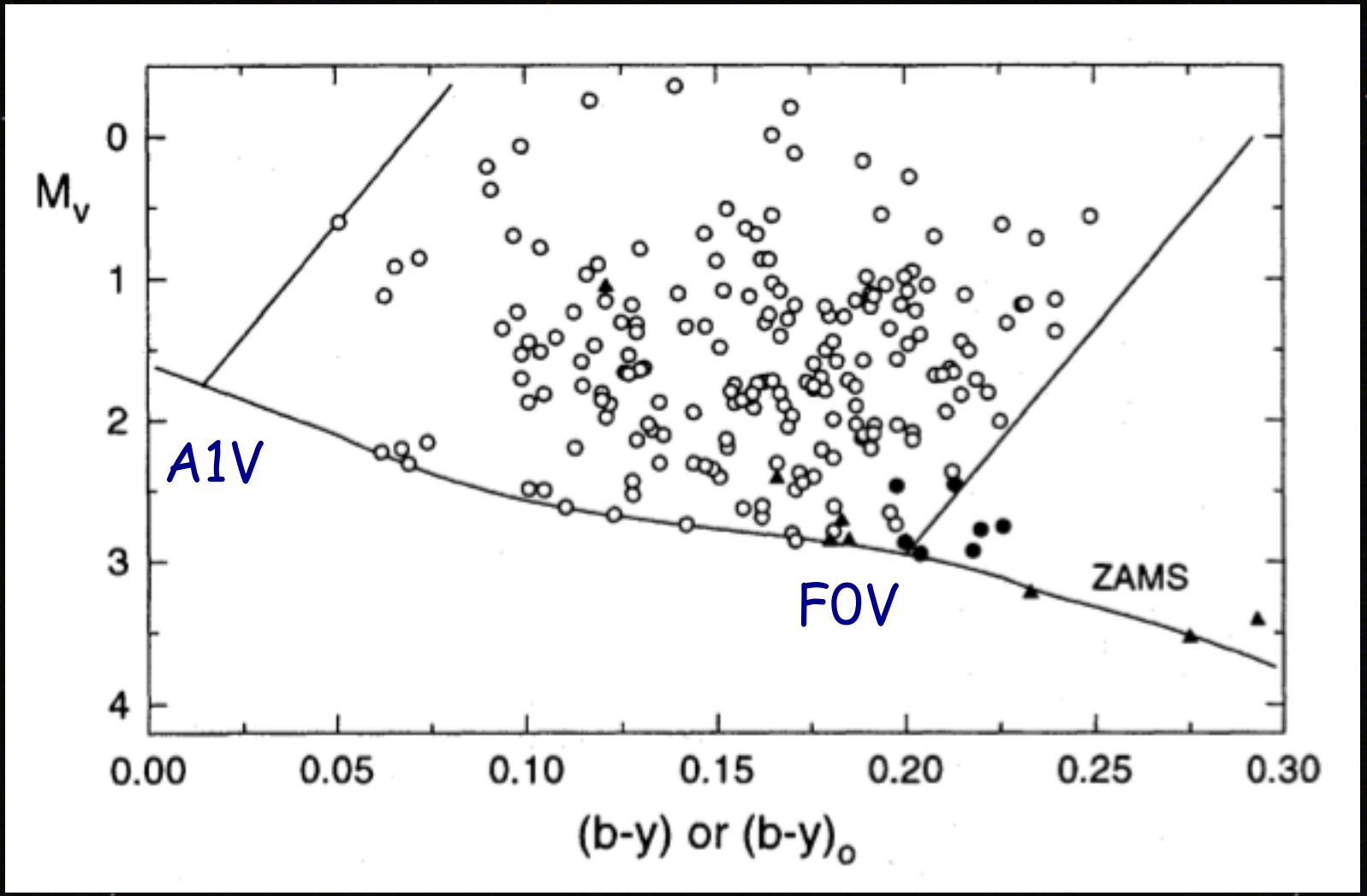
We met there in 1972





Search for coronal line emission from the Cygnus loop
Kurtz, D. W., Vanden Bout, P. A., Angel, J. R. P., 1972,
ApJ, 178, 701 – 706

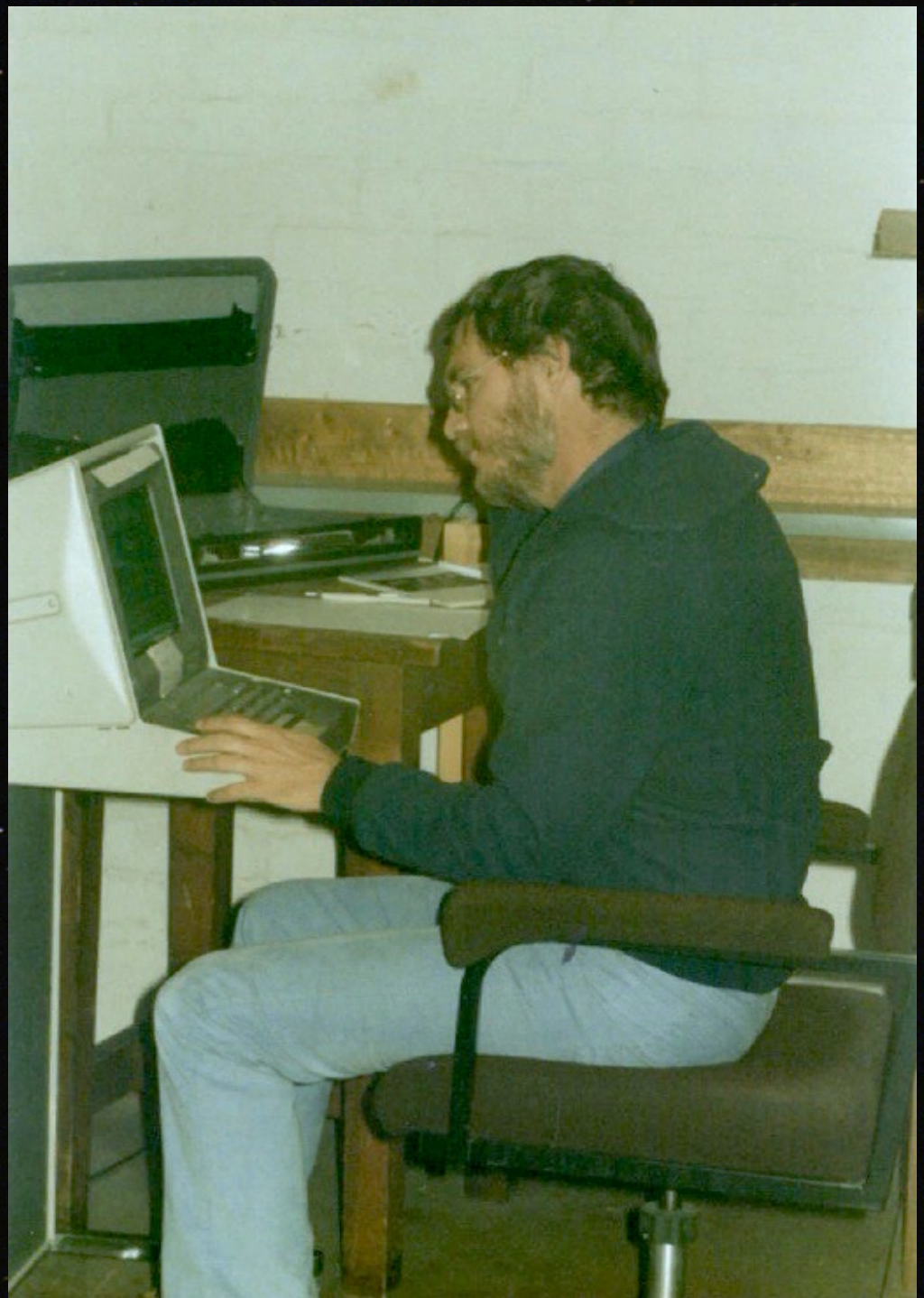
Delta Scuti stars in the H-R Diagram



Chemically peculiar A/early F stars & Delta Scuti pulsation

Classical Am stars	No pulsation found on main sequence (Breger 1970) Some low-level pulsation (Smalley, Kurtz et al. 2011)
Delta Delphini stars (=Rho Pup stars)	Evolved Am stars 'Normal' p-mode pulsation (Kurtz 1976)
Ap SrCrEu (CP2) stars	Strong rare earth elements, magnetic fields Rapidly oscillating (Kurtz 1982), High order, low degree p-mode pulsation.
Lambda Boo stars	Underabundances of most Fe-peak elements, solar abundances of lighter elements (C, N, O, S) 'Normal' p-mode pulsation

McDonald Observatory, Texas



Don at the terminal while observing

METALLICISM AND PULSATION: AN ANALYSIS OF THE δ DELPHINI STARS

by

DONALD WAYNE KURTZ, B.A., M.A.

DISSERTATION

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT AUSTIN

May 1976

METALLICISM AND PULSATION: AN ANALYSIS OF THE δ DELPHINI STARS

APPROVED BY SUPERVISORY COMMITTEE:

Michel Breger

Myron Smith

Frank H. Edmonds Jr.

Also published in

ApJ Suppl.,32, 615, 1976

Some highlights of his dissertation:

Fine abundance analyses show that 5 of the 7 Delta Delphini stars have abundances similar to the evolved Am stars

Delta Del stars are evolved metallic line stars

Any similarities to the Ba II star abundances are coincidental

Some of the Delta Del stars are Delta Scuti pulsators

Pulsation and metallicism are mutually exclusive among the classical Am stars, but may coexist in other stars related to the classical Am stars

Preference for the diffusion hypothesis model for the metallic line stars

Discusses implications of the coexistence of pulsation and diffusion

1978ApJ...221..869K	1.000	05/1978	A	F	G		R	C	S	U
Kurtz, D. W.	Metallicism and pulsation - The marginal metallic line stars									
1978MNSSA..37...36K	1.000	00/1978		F	G			C	S	
Kurtz, D. W.	On the Variability of the Highly Eccentric Spectroscopic Binary Beta Arietis									
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1977PASP...89..941K	1.000	12/1977		F	G		R	C	S	
Kurtz, D. W.	HR 2557: a luminous delta Scuti star.									
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Kurtz, D. W.; Breger, M.; Evans, S. W.; Sandmann, W. H.	Metallicism, pulsation, and the nature of 32 Virginis									

Myron Smith writes

Myron Smith writes

"In 1973 a Don Kurtz suddenly called me to discuss his thoughts on Am stars.

I remember thinking on the fly: 'God, this guy can talk faster than I can think.'

In retribution, I put him up again the best other talker I know – my mom! In the picture they are engaged in a dinner party few years later, also in Austin."

Don Kurtz
and
Eleanor Smith

Shortly afterwards, Myron Smith joined
Don's dissertation committee.

Why did we not detect roAp pulsation earlier?

Delta Scuti stars: typical telescope observations take 6 mins per set.

We might miss a roAp pulsation with a period of 6.5 mins:

Sampling Theorem: "*A signal can be reconstructed from its samples if the original signal has no frequencies above $\frac{1}{2}$ the sampling frequency.*"

The Nyquist frequency, f_c, is 120 cycles/day.

However, we might see an alias frequency ($2f_c - f$) of 20 cycles/day or period of 1.2 hours.

Using near-continuous observations, in 1978 Don detected the 12.15 minute light variation in the magnetic Pryzbylski's Star.

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Some private recollections: Don Kurtz giving speech at my (non)retirement from the Univ. of Vienna

IAU Symp. 224
Poprad, Slovakia
„The A-star puzzle"
July, 2004

Going up the Tatra mountains

The Univ. Texas (UT) / South Africa connection:

Three UT professors:

David Evans used to be at the Royal Observatory, Cape Town

Brian Warner left in 1972 to become the UCT head of Astronomy Dept.

Michel Breger had been an undergraduate at UCT and Royal and Radcliffe Observatories

So, Don Kurtz used the great opportunity to go to South Africa

..... And the saga continues .....