Title: Nature of Science (2)

Date: Aug 25, 2004 10:45 AM

URL: http://pirsa.org/04080004

Abstract:

Evidence for the new scale in very low energy astrophysics:

The Tully Fischer Relation:

- Galaxies have flat rotation curves, with velocity V.
- Total luminosity L

astro-ph/0204521

$$C\,L = V^a \qquad a = 3.9 \pm 0.2$$

- K= L/M (M-total mass)

$$CK\,M = V^4$$

- ***CK should be prop to G***
- ***CK= Ga_0***

$$a_0 = 1.2\ 10^{-8}\ cm/sec^2$$
$$= \sqrt{\Lambda}\ c^2/6$$

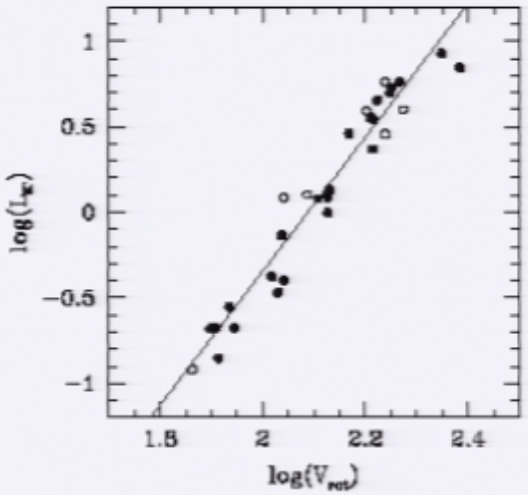
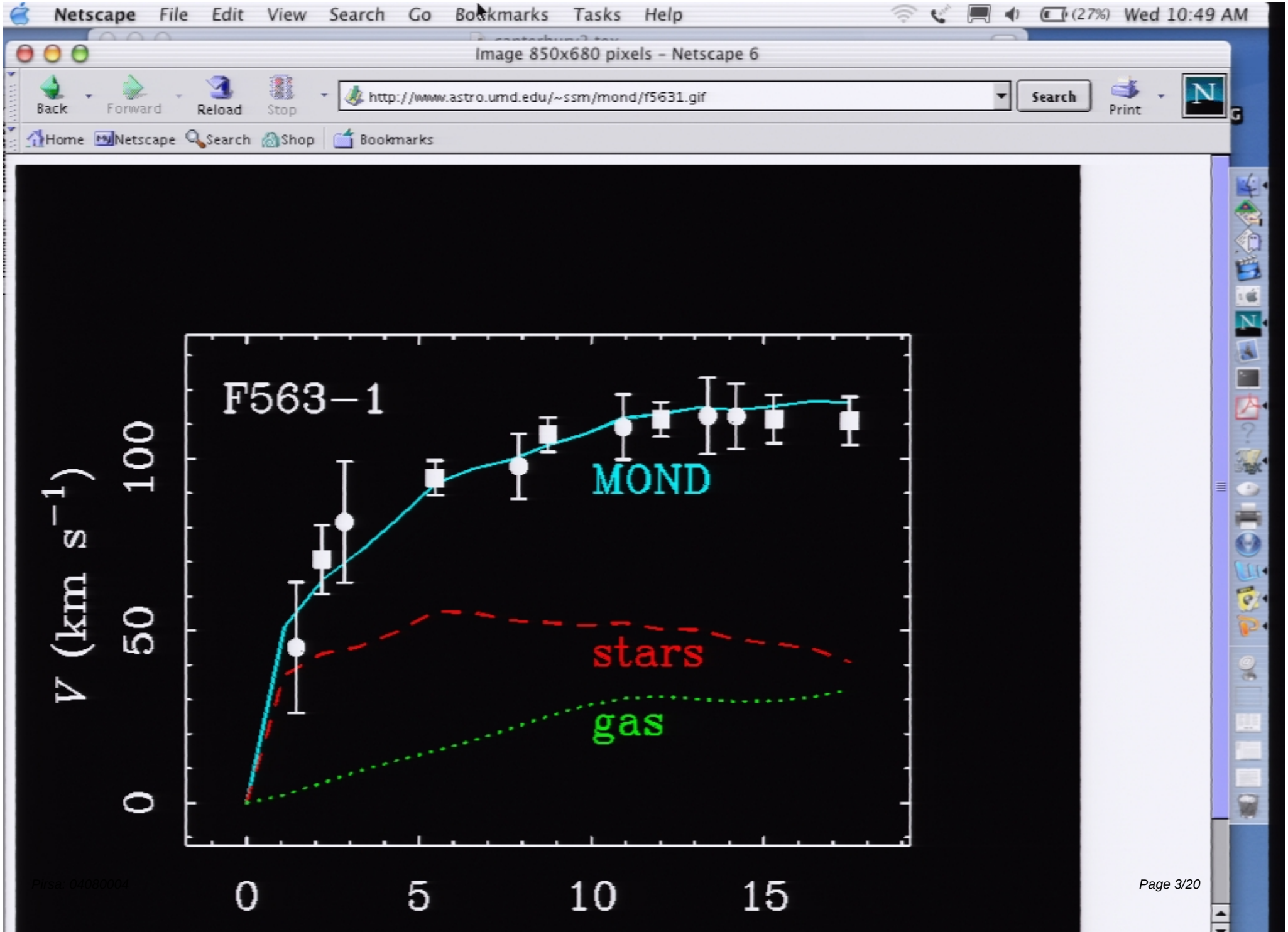


Figure 2: The near-infrared Tully-Fisher relation of Ursa Major spirals ((Sanders & Verheijen 1998)). The rotation velocity is the asymptotically constant value. The velocity is in units of kilometers/second and luminosity in 10^{10} $L_\odot$. The unshaded points are galaxies with disturbed kinematics. The line is a least-square fit to the data and has a slope of 3.9 ± 0.2.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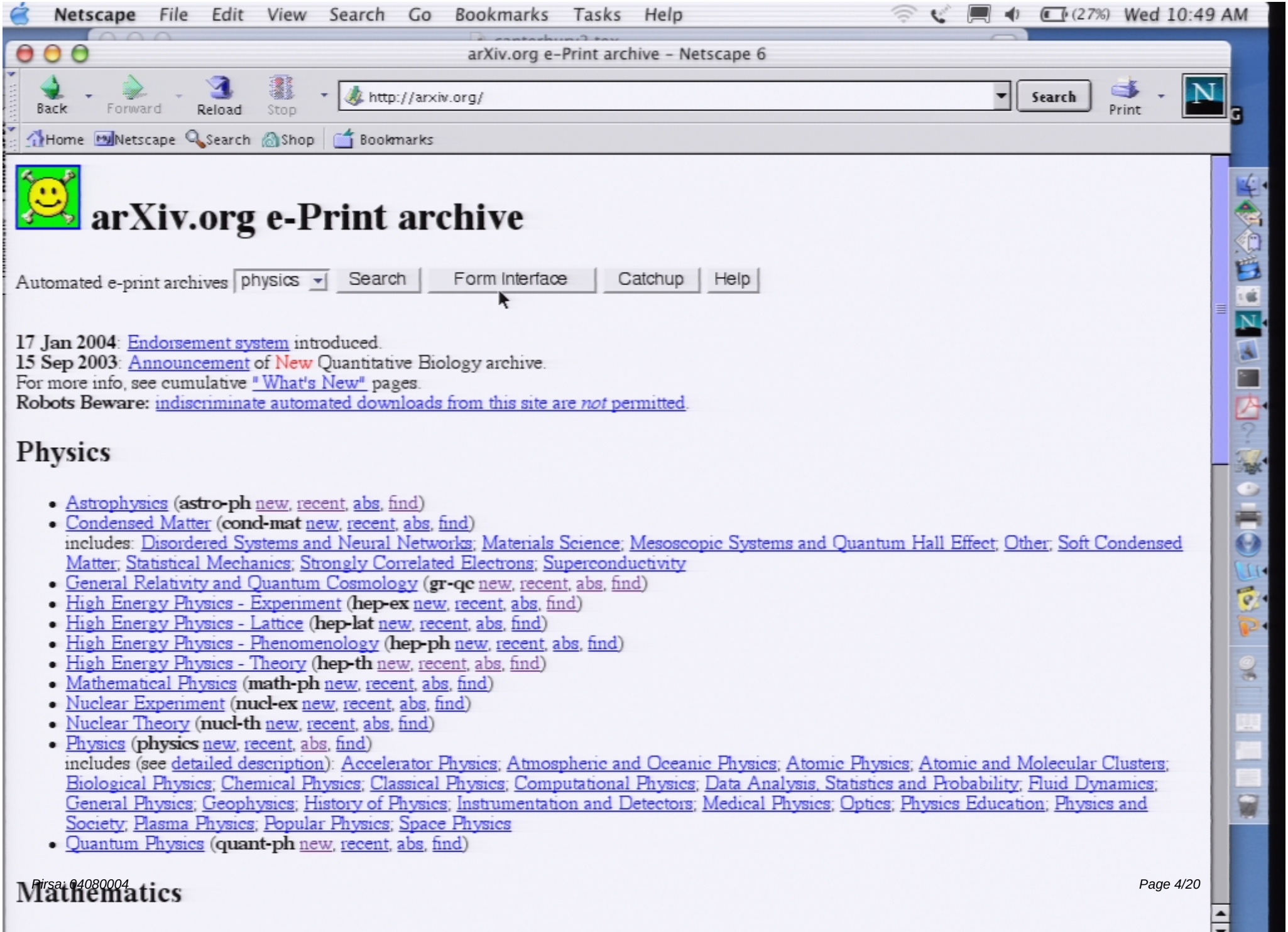
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17 Jan 2004: Endorsement system introduced.
15 Sep 2003: Announcement of New Quantitative Biology archive.
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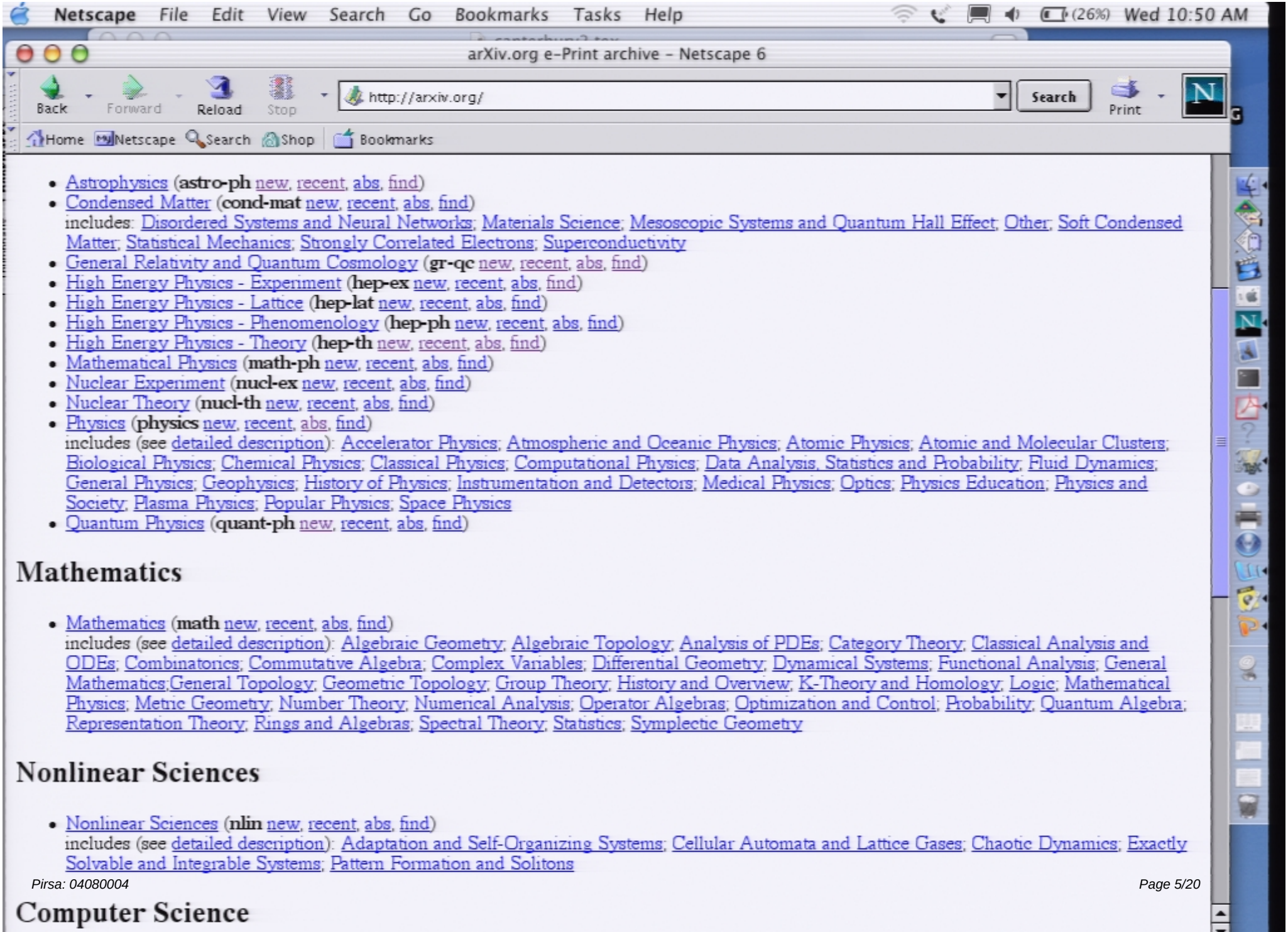

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- Quantum Physics (**quant-ph** new, recent, abs, find)

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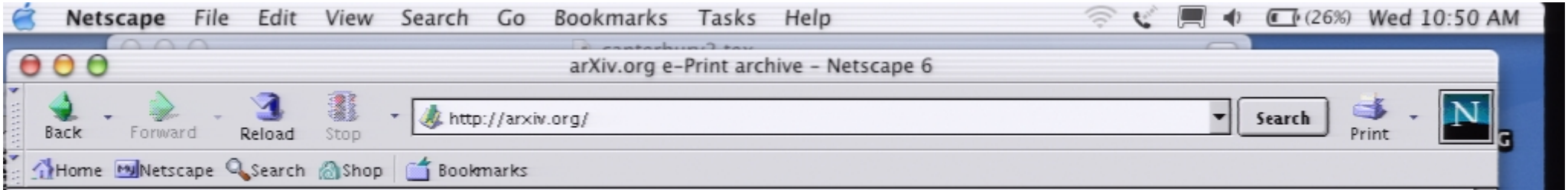

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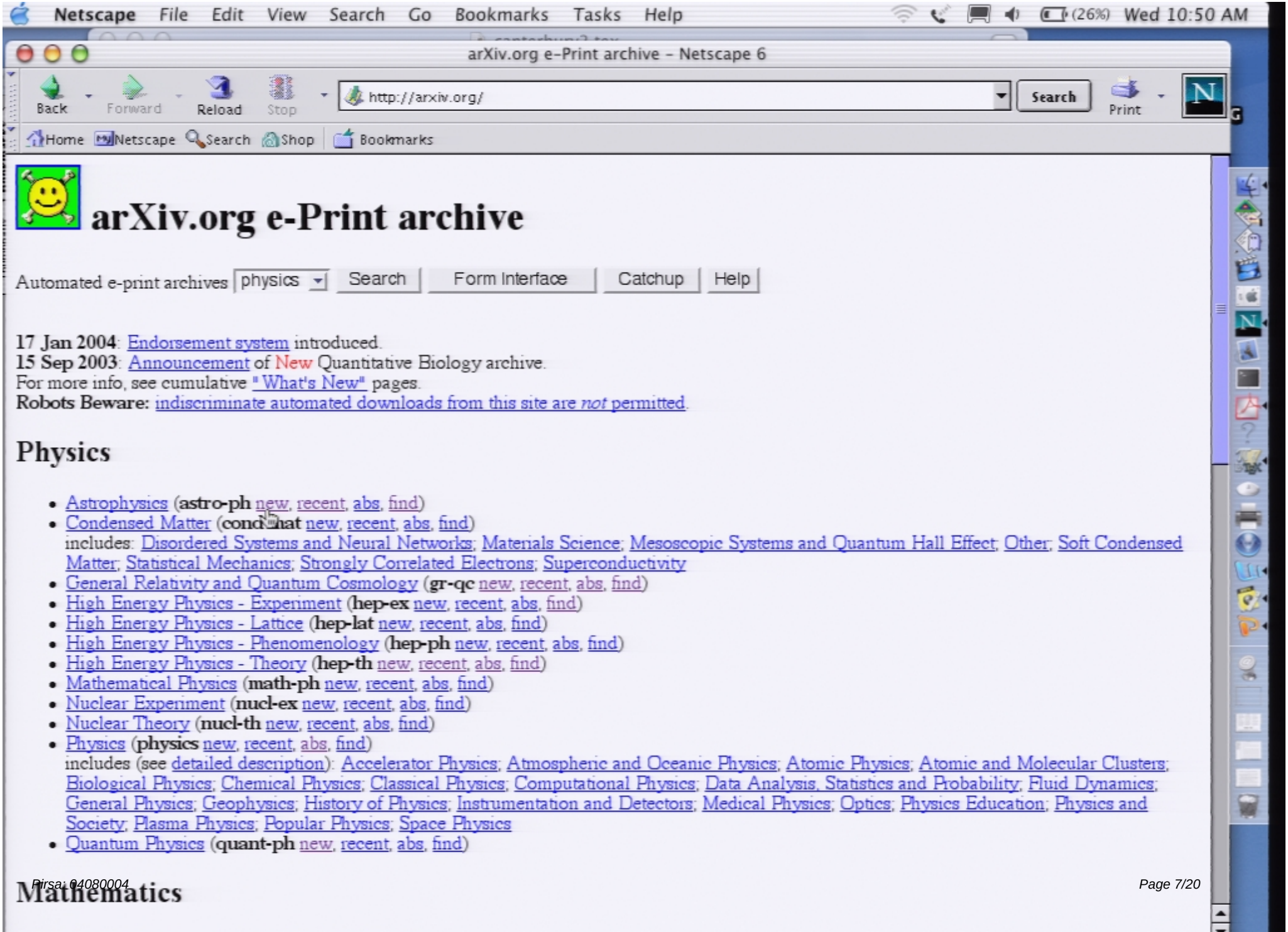

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- Quantum Physics (**quant-ph** new, recent, abs, find)

Mathematics

Astrophysics

astro-ph new abstracts, Wed, 25 Aug 04 00:00:06 GMT
0408414 -- 0408454 received

astro-ph/0408414 [abs, ps, pdf, other] :

Title: Detectability of GRB Iron Lines by Swift, Chandra and XMM
Authors: L. J. Gou, P. Meszaros, T. R. Kallman
Comments: 24 pages, 12 figures, ApJ submitted

The rapid acquisition of positions by the upcoming Swift satellite will allow the monitoring for X-ray lines in GRB afterglows at much earlier epochs than waspreviously feasible. We calculate the possible significance levels of iron line detections as a function of source redshift and observing time after the trigger, for the Swift XRT, Chandra ACIS and XMM Epic detectors. For standard burst luminosities and decay rates and equivalent widths of 1 keV as previously reported, depending on the source-frame epoch at which the lines appear, Swift may be able to detect lines up to z~7 with a significance of better than 3 sigma. Equivalent widths of 0.5 keV should be detectable with better than 4.5 sigma at z up to ~8 by Chandra, and at z up to ~11 by XMM. For higher initial luminosities, as seen in some GRBs and as might be the case in population III bursts, similar significance levels are obtained out to substantially higher redshifts. For standard burst parameters, Chandra can distinguish between broad and narrow lines to better than 3 sigma up to z ~ 6,while Swift can do so up to z~0.5. For the higher luminosities, Swift is able to distinguish at the 5 sigma level between a broad and a narrow line up to z ~3, and between a 6.7 kev vs. a 6.4 keV line center up to z ~5.

astro-ph/0408415 [abs, ps, pdf, other] :

Title: Detecting Dark Energy in Orbit -- the Cosmological Chameleon
Authors: Philippe Brax, Carsten van de Bruck, Anne-Christine Davis, Justin Khoury, Amanda Weltman
Comments: 31 pages, 6 figures

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We show that the chameleon scalar field can drive the current phase of cosmic acceleration for a large class of scalar potentials that are also consistent with local tests of gravity. These provide explicit realizations of a quintessence model where the quintessence scalar field couples directly to baryons and dark matter with gravitational strength. We analyze the cosmological evolution of the chameleon field and show the existence of an attractor solution with the chameleon following the minimum of its effective potential. For a wide range of initial conditions, spanning many orders of magnitude in initial chameleon energy density, the attractor is reached before nucleosynthesis. Surprisingly, the range of allowed initial conditions leading to a successful cosmology is wider than in normal quintessence. We discuss applications to the cyclic model of the universe and show how the chameleon mechanism weakens some of the constraints on cyclic potentials.

astro-ph/0408416 [abs, ps, pdf, other] :

Title: Low angular momentum accretion-outflow model of flares from Sgr A*
Authors: Tapas K. Das, Bozena Czerny
Comments: Submitted to MNRAS Letters. 5 pages, 4 figures

We employ a low angular momentum accretion-outflow scenario to model the flares emanating out from the central region of Sgr A*. The primary donor for matter accreting onto the central SMBH of Sgr A* is assumed to be the WR star ISR 13 E3. We analytically calculate the specific energy and angular momentum density of stellar wind originating from ISR 13 E3 and study the dynamics of that wind down to the very close vicinity of the central SMBH of Sgr A*. We show that on the way to the Galactic centre, such wind-fed accretion may encounter standing shocks and such shock drives outflow from the close vicinity of the SMBH. Matter content of such outflow is computed and it is argued that such outflow is responsible for production of the Galactic centre flares. We then self-consistently compute the luminosity ${\cal L}_i$ and

Authors: N. Zwahlen (1), P. North (1), Y. Debernardi (1), L. Eyer (2), F. Galland (3), M.A.T. Groenewegen (4), C. Hummel (5) ((1) Laboratoire d'Astrophysique de l'EPFL, (2) Observatoire de Geneve, (3) Observatoire de Grenoble, (4) Leuven, (5) European Southern Observatory)
Comments: 5 pages, 3 figures, accepted for publication in A&A Letters

We present radial velocity and new interferometric measurements of the double star Atlas, which permit, with the addition of published interferometric data, to precisely derive the orbital parameters of the binary system and the masses of the components. The derived semi-major axis, compared with its measured angular size, allows to determine a distance to Atlas of 132+-4 pc in a purely geometrical way. Under the assumption that the location of Atlas is representative of the average distance of the cluster, we confirm the distance value generally obtained through main sequence fitting, in contradiction with the early Hipparcos result (118.3+-3.5 pc).

astro-ph/0408431 [abs, ps, pdf, other] :

Title: Formation of omega Centauri by tidal stripping of a dwarf galaxy
Authors: Makoto Ideta, Junichiro Makino
Comments: 14 pages, 2 tables, 4 figures. Submitted to ApJL

We have investigated whether or not a tidal stripping scenario can reproduce the observed surface brightness profile of omega Centauri using N-body simulations. Assuming that the progenitor of omega Centauri is a dwarf elliptical galaxy, we model it with a King model with a core radius being the same as that of omega Centauri. We consider two different models of the Milky Way potential: a singular isothermal sphere and a three-component model. The progenitor dwarf is expressed as an N-body system, which orbits in the fixed Galactic potential. The dwarf lost more than 90 per cent of its mass during the first few pericenter passages. Thereafter, the mass remains practically constant. The final surface density profile is in good agreement with the observational data of omega Centauri, if the pericenter distance of the orbit of the progenitor dwarf is around 500 pc. This value is within the error bar of the current proper motion data of omega Centauri and Galactic parameters. Our simulation strongly suggests that the current density profile of omega Centauri is nicely reproduced by a tidal stripping scenario, in other words, that omega Centauri is a stripped dwarf elliptical.

astro-ph/0408432 [abs, ps, pdf, other] :

Title: Optical and near infrared observations of V1647 Ori and McNeil's Nebula in February-April 2004
Authors: M. Kun, J. A. Acosta-Pulido, A. Moor, P.Abraham, M. Charcos-Llorens, A. Kospal, Sz. Csizmadia, A. Manchado, M. J. Vidal-Nunez, J. M. Benko
Comments: 11 pages, 8 figures, submitted to Astronomy and Astrophysics on 23 July, 2004

We combine our photometric and near infrared spectroscopic observations of the outburst star V1647 Ori with published data in order to make

Astrophysics

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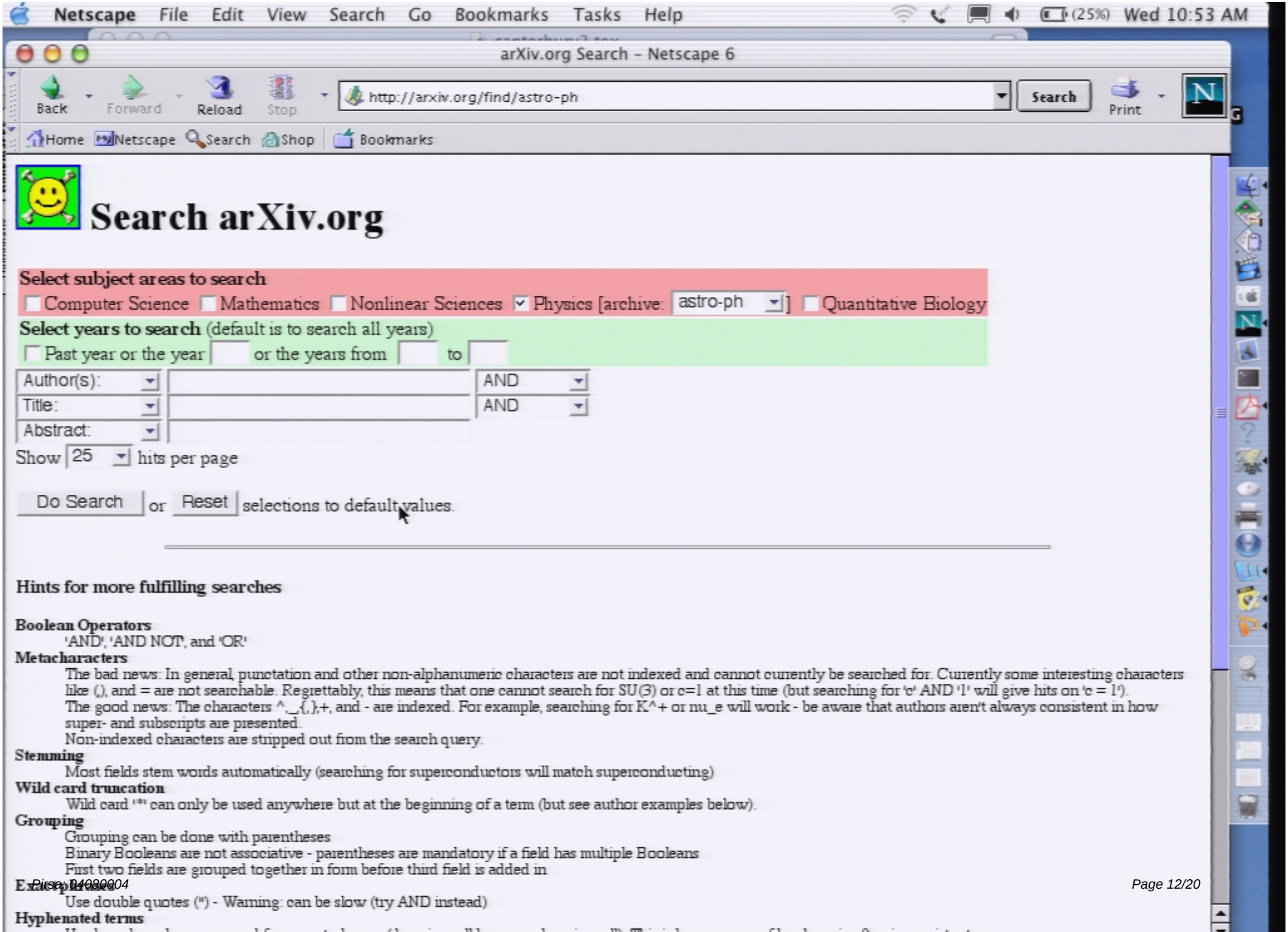
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The good news: The characters ^,_,{,},+, and - are indexed. For example, searching for K^+ or nu_e will work - be aware that authors aren't always consistent in how super- and subscripts are presented.
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Grouping
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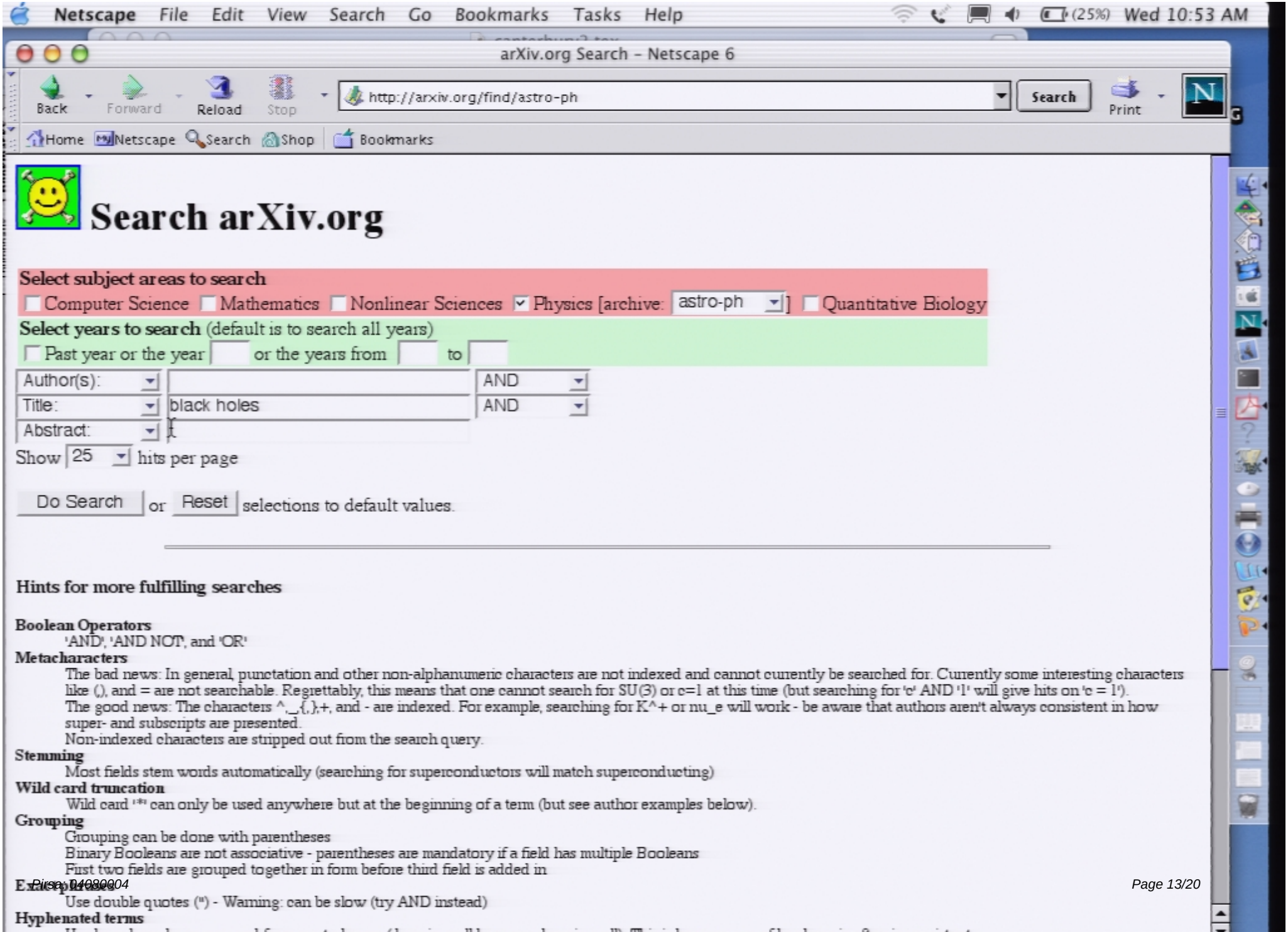
First two fields are grouped together in form before third field is added in
Exact phrase
Use double quotes (") - Warning: can be slow (try AND instead)
Hyphenated terms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1. astro-ph/0408450 [abs, ps, pdf, other] :

Title: Dark energy and supermassive black holes
Authors: Pedro F. Gonzalez-Diaz (IMAFF, CSIC, Madrid)
Comments: 13 pages, RevTex, accepted for publication in Phys. Rev. D

2. astro-ph/0408326 [abs, ps, pdf, other] :

Title: Nuclear Spirals and Supermassive Black Holes
Authors: H. B. Ann, Parijat Thakur (Pusan National University, Korea)
Comments: 2 pages, 1 Postscript figures, appeared in International Astronomical Union Symposium no. 220, held 21 - 25 July, 2003 in Sydney, Australia. Eds: S. D. Ryder, D. J. Pisano, M. A. Walker, and K. C. Freeman. San Francisco: Astronomical Society of the Pacific. Publication Date: 07/2004
Journal-ref: IAUS 220 (2004) 315

3. astro-ph/0408166 [abs, ps, pdf, other] :

Title: The Environmental Impact of Supermassive Black Holes
Authors: Abraham Loeb (Harvard)
Comments: Invited contribution to Proceedings of the Conference on "Growing Black Holes" held in Garching, Germany, on June 21-25, 2004 edited by A. Merloni, S. Nayakshin and R. Sunyaev, Springer-Verlag series of "ESO Astrophysics Symposia"

4. astro-ph/0407512 [abs, ps, pdf, other] :

Title: Black hole growth by accretion
Authors: Smita Mathur, Dirk Grupe (Ohio State)
Comments: Submitted to A&A Research Notes

5. astro-ph/0407501 [abs, ps, pdf, other] :

Title: Why the astrophysical Black Hole Candidates are not rotating black holes
Authors: Abhas Mitra (NRL, BARC, India)
Comments: 9 pages

6. astro-ph/0407440 [abs, ps, pdf, other] :

Title: Stability of primordial black holes
Authors: Yoshiyuki Takahashi
Comments: Phys Rev D (submitted)

7. astro-ph/0406550 [abs, ps, pdf, other] :

Title: The Ecology of Black Holes in Star Clusters
Authors: Simon Portegies Zwart
Comments: 71 pages (large file). Lecture note to appear in "Joint Evolution of Black Holes and Galaxies" of the Series in High Energy Physics, Cosmology and Gravitation. IOP Publishing, Bristol and Philadelphia, 2005, eds M. Colpi, V.Gorini, F.Haardt and U.Moschella

8. astro-ph/0406260 [abs, ps, pdf, other] :

Title: Supermassive black holes from primordial black hole seeds
Authors: Norbert Duechting
Comments: 8 pages, 3 figures

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Authors: Norbert Duechting
Comments: 8 pages, 3 figures

9. astro-ph/0406005 [abs, ps, pdf, other] :

Title: Black Holes and Ultrarelativistic Particles
Authors: C. Chicone, B. Mashhoon
Comments: 9 pages, 3 figures, submitted for publication

10. astro-ph/0405253 [abs, ps, pdf, other] :

Title: Supermassive Black Holes in Spiral Galaxies
Authors: Duccio Macchetto (ESA/STScI)
Comments: 6 pages, 5 figures, to be published in "The Interplay among Black Holes, Stars and ISM in Galactic Nuclei," Th. Storchi Bergmann, L.C. Ho & H.R. Schmitt, eds

11. astro-ph/0405113 [abs, ps, pdf, other] :

Title: Black Hole Induced Ejections
Authors: G. Pelletier (LAOG/IUF Grenoble France)
Comments: 26 pages, draft version of the invited paper for the book "Dynamics and dissipation in electromagnetically dominated media" (Nova Science) edited by M. Lyutikov

12. hep-th/0404216 [abs, ps, pdf, other] :

Title: Accretion of Ghost Condensate by Black Holes
Authors: Andrei V. Frolov
Comments: 5 pages, 3 figures, REVTeX 4.0; discussion expanded

13. hep-th/0404096 [abs, ps, pdf, other] :

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Author(s):	stephon alexander	AND
Title:		AND
Abstract:		

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Hints for more fulfilling searches

Boolean Operators
'AND', 'AND NOT', and 'OR'

Metacharacters
The bad news: In general, punctation and other non-alphanumeric characters are not indexed and cannot currently be searched for. Currently some interesting characters like (,), and = are not searchable. Regrettably, this means that one cannot search for SU(3) or c=1 at this time (but searching for 'c' AND '1' will give hits on 'c = 1').
The good news: The characters ^,_,{,},+, and - are indexed. For example, searching for K^+ or nu_e will work - be aware that authors aren't always consistent in how super- and subscripts are presented.
Non-indexed characters are stripped out from the search query.

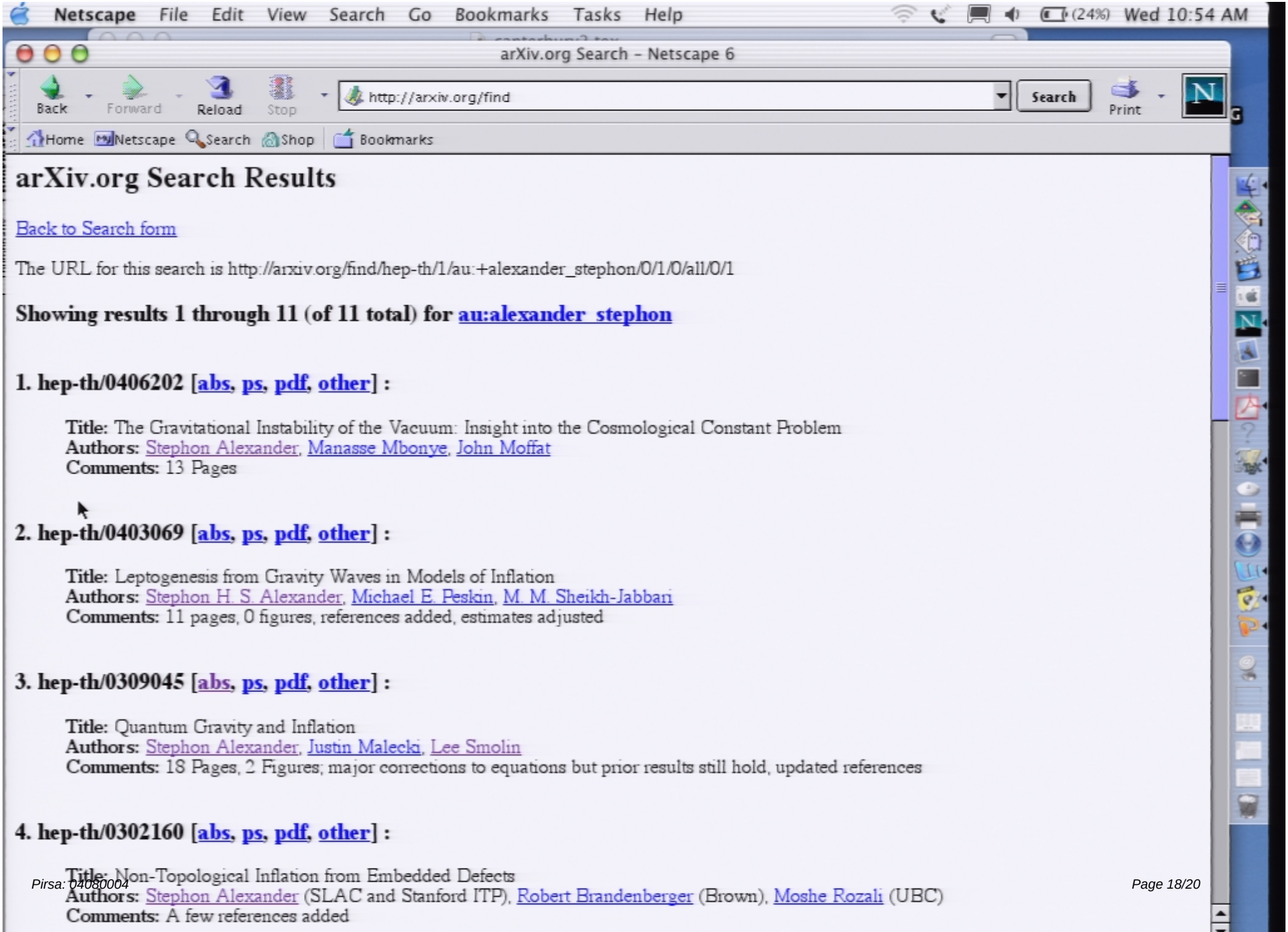
Stemming
Most fields stem words automatically (searching for superconductors will match superconducting)

Wild card truncation
Wild card '*' can only be used anywhere but at the beginning of a term (but see author examples below).

Grouping
Grouping can be done with parentheses
Binary Booleans are not associative - parentheses are mandatory if a field has multiple Booleans
First two fields are grouped together in form before third field is added in

Exact phrase
Use double quotes (") - Warning: can be slow (try AND instead)

Hyphenated terms



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The URL for this search is http://arxiv.org/find/hep-th/1/au:+alexander_stephon/0/1/0/all/0/1

Showing results 1 through 11 (of 11 total) for au:alexander_stephon

1. hep-th/0406202 [abs, ps, pdf, other] :

Title: The Gravitational Instability of the Vacuum: Insight into the Cosmological Constant Problem
Authors: Stephon Alexander, Manasse Mbonye, John Moffat
Comments: 13 Pages

2. hep-th/0403069 [abs, ps, pdf, other] :

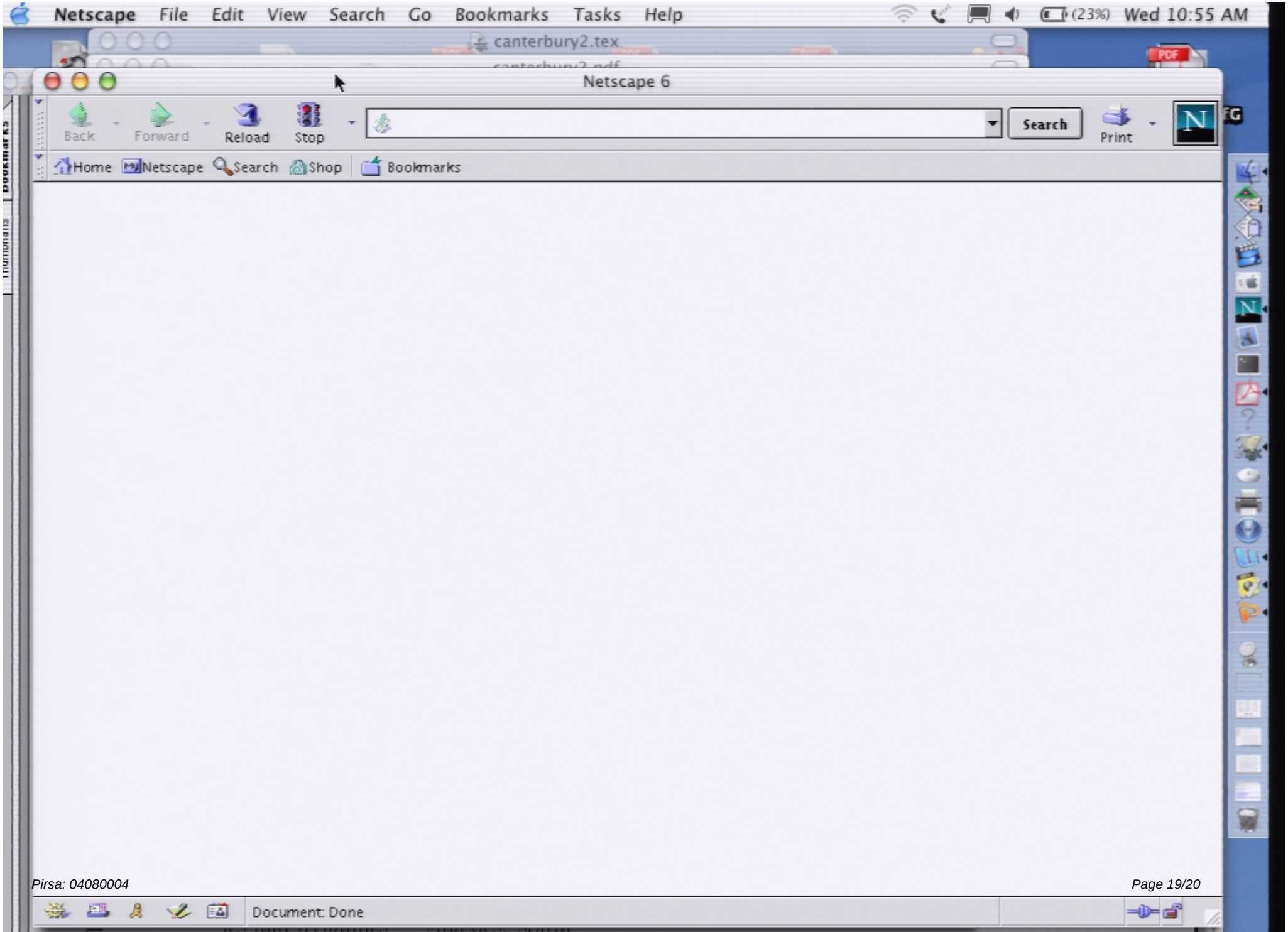
Title: Leptogenesis from Gravity Waves in Models of Inflation
Authors: Stephon H. S. Alexander, Michael E. Peskin, M. M. Sheikh-Jabbari
Comments: 11 pages, 0 figures, references added, estimates adjusted

3. hep-th/0309045 [abs, ps, pdf, other] :

Title: Quantum Gravity and Inflation
Authors: Stephon Alexander, Justin Malecki, Lee Smolin
Comments: 18 Pages, 2 Figures; major corrections to equations but prior results still hold, updated references

4. hep-th/0302160 [abs, ps, pdf, other] :

Title: Non-Topological Inflation from Embedded Defects
Authors: Stephon Alexander (SLAC and Stanford ITP), Robert Brandenberger (Brown), Moshe Rozali (UBC)
Comments: A few references added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Evidence for the new scale in very low energy astrophysics:

The Tully Fischer Relation:

- Galaxies have flat rotation curves, with velocity V.
- Total luminosity L

astro-ph/0204521

$$C\,L = V^a \qquad a = 3.9 \pm 0.2$$

- K= L/M (M-total mass)

$$CK\,M = V^4$$

- ***CK should be prop to G***
- ***CK= Ga_0***

$$a_0 = 1.2\ 10^{-8}\ cm/sec^2 = \sqrt{\Lambda}\ c^2/6$$

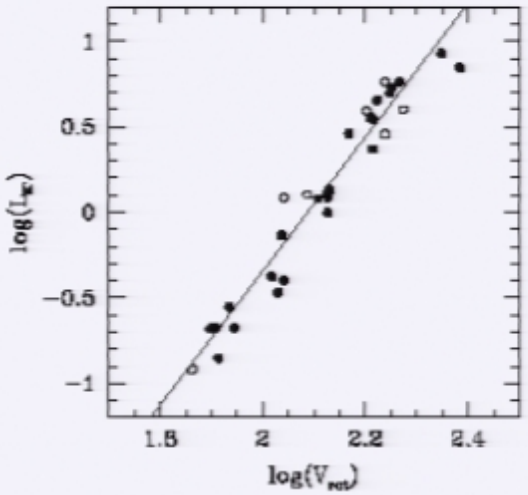

Figure 2: The near-infrared Tully-Fisher relation of Ursa Major spirals ((Sanders & Verheijen 1998)). The rotation velocity is the asymptotically constant value. The velocity is in units of kilometers/second and luminosity in 10^{10} $L_\odot$. The unshaded points are galaxies with disturbed kinematics. The line is a least-square fit to the data and has a slope of 3.9 ± 0.2