

# Curriculum Vitae

## Personal information

Name: Jacco Vink  
Date of birth: November 1, 1969  
Place of birth: Leiden, The Netherlands  
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## Research Positions

9/2003-present Research position at SRON National Institute of Space Research, Utrecht, The Netherlands.  
9/2000-8/2003 *Chandra fellow* at Columbia University. The title of the Chandra Fellowship program was “Supernova remnants as laboratories to study shock physics”. The grant was awarded by the Chandra X-ray Observatory Center on behalf of NASA.  
5/1999-8/2000 Research position at the Astrophysikalisches Institut Potsdam. Continued work on X-ray emission from supernova remnants. Development of source detection software for the X-ray observatory XMM-Newton, which resulted in the *ewavelet* program that is part of the standard XMM-Newton software package.

## Education

3/1995-4/1999 Graduate research position at SRON-Utrecht and the University of Utrecht.  
Thesis title: The spectral X-ray morphology of the supernova remnants Cas A, RCW 86 & SN 1006.  
Thesis advisers: Prof. Dr. Johan Bleeker and Dr. Jelle Kaastra.  
9/1988 - 5/1994 Student in Astronomy at the University of Leiden.  
Master thesis: “The cluster luminosity function” under supervision of Dr. P. Katgert.

## Professional experiences

- Referee for a.o Letters and Main Journal of the Astrophysical Journal and Astronomical & Astrophysics.
- Peer review panel for the LTSA/ADP programs.
- Peer review panel for NASA's X-ray satellite Chandra GO program.
- Organizer of lunch talks ("pizza-lunches") at Columbia University.
- One month work visits to CESR Toulouse (2004), and University of Osaka (1996).
- Teaching assistant to Jan Kuijpers, at Utrecht University (1998).
- Three week visit to the European Southern Observatory, Chile, for observations with the 50cm Danish Telescope (1993).

## Selected oral presentations

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| 11/2004 | "High resolution X-ray spectroscopy of SN 1006" (invited),<br>Workshop, "X-ray Diagnostics of Astrophysical Plasmas", Cambridge Ma.          |
| 7/2004  | "Nonthermal X-rays Emission from Supernova Remnants" (invited),<br>Symposium "High Energy Gamma-Ray Astronomy" ( $\gamma$ -2004), Heidelberg |
| 7/2004  | "Gamma-Ray Observations of Supernova Nucleosynthesis" (invited),<br>COSPAR conference, Paris   |
| 7/2004  | "High Resolution Spectroscopy of Supernova Remnants" (invited),<br>COSPAR conference, Paris  |
| 5/2004  | "X-ray Emission of Shell-type Supernova Remnants",<br>Colloquium, CESR, Toulouse   |
| 4/2004  | "X-ray studies of Cassiopeia A: Exposing Core Collapse to the Core",<br>Colloquium, University of Groningen                                  |
| 1/2004  | "Supernova Remnants",<br>Symposium in honor of Johan Bleeker   |
| 7/2003  | "Invited review: Observations of supernova remnants",<br>IAU General Assembly, Sydney, S218: Young Neutron Stars and their Environments      |
| 5/2003  | "Hard X-ray/soft gamma ray continuum emission and Ti-44 line emission from Cas A",<br>Astronomy with Radioactivities, Seeon, Germany         |
| 5/2003  | "Observations of Supernova Remnants" (invited),<br>Symposium The Restless High-Energy Universe, Amsterdam                                    |
| 3/2003  | "New X-ray Evidence for Slow Temperature Equilibration behind the Shock Front of SN 1006",<br>AAS-HEAD meeting, Mt Tremblant, Canada         |
| 2/2003  | "Magnetic Fields & Particle Acceleration in Cas A",<br>Colloquium, Rutgers University, New Brunswick, NJ                                     |
| 2/2003  | "Magnetic Fields & Particle Acceleration in Cas A",<br>Colloquium, University of Mass., Amherst  |

11/2002	“Ionization and temperature non-equilibration in SN 1006”, colloquium Amsterdam
10/2002	“Observational evidence for cosmic ray acceleration in supernova remnants” (invited), Cospas convention, Houston, TX.
3/2002	“The detection of Sc-44 line emission and hard X-ray emission from Cas A”, XXII Moriond Conference “The Gamma-Ray Universe”, Les Arcs, France.
11/2001	“A synoptic study of Cassiopeia A based on XMM-Newton and BeppoSax ob- servations”, symposium “New visions of the X-ray universe in the XMM-Newton and Chandra era”, ESTEC, Noordwijk, The Netherlands.
9/2001	“Detection of the nuclear decay lines of $^{44}\text{Sc}$ associated with the decay of $^{44}\text{Ti}$ in Cas A”, Colloquium, Naval Research Laboratory, Washington DC.
10/1998	“Characterization of thermal & non-thermal X-Rays in Cas A”, at the “Young supernova remnant workshop”, Boulder, Colorado.
12/1997	“X-ray spectroscopy of the supernova remnant RCW 86”, Colloquium at the Observatory of Palermo, Italy.
10/1997	“Three supernova remnants observed by BeppoSAX”, BeppoSAX/RXTE conference “The active X-ray sky”, Rome, Italy.
3/1997	“X-ray spectroscopy of Cas A” (invited), at the Workshop “ $10^{51}$ erg: The evolution of shell-type supernova remnants”, Minneapolis.
3/1996	“A new mass estimate and puzzling abundances of SNR Cas A”, Colloquium at the Astronomical Institute of Osaka, Japan.

### Research interest

- Supernova remnants
- Cosmic ray acceleration and shock physics
- Explosive nucleosynthesis
- Diffuse X-ray emission from the Galaxy and other galaxies
- AGN
- Isolated Neutron Stars

# Publication list

## Journal publications

1. Teegarden, B., et al., *INTEGRAL/SPI Limits on Electron-Positron Annihilation Radiation from the Galactic Plane*, 2004, ApJ accepted
2. Hwang, U., et al., *A Million-Second Chandra View of Cassiopeia A*, 2004, ApJ 615, L117
3. **Vink, J.**, de Vries, C. P., **Vink, J.**, Mendez, M., Verbunt, F., *The Continued Spectral Evolution of the Neutron Star RX J0720.4-3125*, 2004, ApJ, 609, L75
4. de Vries, C. P., **Vink, J.**, Mendez, M., Verbunt, F., *Long-term variability in the X-ray emission of RX J0720.4-3125*, 2004, A&A 415, L31
5. **Vink, J.**, *Revealing the obscured supernova remnant Kes 32 with Chandra*, 2004, ApJ 604, 693
6. **Vink, J.**, *X and gamma-ray studies of Cas A: Exposing core collapse to the core*, 2004, New Astronomy Reviews, 48, 61
7. **Vink, J.**, *Shocks and Particle Acceleration in Supernova Remnants: Observational Features* (review article), 2004, Advance of Space Research 33/4, 356
8. van der Heyden, K.J., Bleeker, J.A.M., Kaastra, J.S., **Vink, J.**, *High resolution spectroscopy and emission line imaging of DEM L71 with XMM-Newton*, 2003, A&A 406, 141
9. **Vink, J.**, Laming, J.M., Gu, M.F., Rasmussen, A., Kaastra, J.S., *Slow temperature equilibration behind the shock front of SN 1006*, 2003, ApJ 587, L31
10. **Vink, J.** & Laming, J.M., *On the magnetic fields and particle acceleration in Cas A*, 2003, ApJ 584, 758
11. Van der Heyden, K., Behar, E., **Vink, J.**, et al., *High-Resolution X-ray imaging and spectroscopy of SNR N103B*, 2002, A&A 392, 955
12. Willingale, R., Bleeker, J., van der Heyden, K., Kaastra, J., **Vink J.**, *X-ray spectral imaging and Doppler mapping of Cassiopeia A*, 2002, A&A 382, 1039
13. **Vink, J.**, Laming, M., Kaastra, J., Bleeker, J., Bloemen, H., Oberlack, U., *Detection of the 67.9 keV and 78.4 keV lines associated with the radio-active decay of  $^{44}\text{Ti}$  in Cassiopeia A*, 2001, ApJ 560, L79
14. Bleeker, J., Willingale, R., van der Heyden, K., Dennerl, K., Kaastra, J.S., Asschenbach, B., **Vink, J.**, *Cassiopeia A: On the origin of the hard X-ray continuum and the implication of the observed O VIII Ly- $\alpha$ /Ly $\beta$  distribution*, 2001, A&A 365, L225
15. **Vink, J.**, Bocchino, F., Damiani, F., Kaastra, J.S., *An unresolved X-ray source inside the supernova remnant RCW 86*, 2000, A&A 362, 711
16. Bocchino, F., **Vink, J.**, Favata, F., Maggio, A., Sciortino, S., *A BeppoSAX and ROSAT view of the RCW86 supernova remnant*, 2000, A&A 360, 671
17. **Vink, J.**, Kaastra, J., Bleeker, J., Preite-Martinez, A., *The BeppoSAX X-ray spectrum of the remnant of SN 1006*, 2000, A&A 354, 931
18. **Vink, J.**, Kaastra, J., Bleeker, J., Bloemen, J., *The hard X-ray emission and  $^{44}\text{Ti}$  emission of Cas A*, 2000, Adv. Space Res. 25/3-4, 689

19. **Vink, J.**, Maccarone, M., Kaastra, J., et al., *A comparison of the X-ray line and continuum morphology of Cassiopeia A*, 1999, A&A 344, 289
20. **Vink, J.**, Bloemen, J., Kaastra, J.S., Bleeker, J.A.M., *The expansion of Cassiopeia A as seen in X-rays*, 1998, A&A 339, 201
21. **Vink, J.**, Kaastra, J., Bleeker, J., *X-ray spectroscopy of the supernova remnant RCW 86*, 1997, A&A 328, 628
22. Favata F., **Vink J.**, Parmar A.N., Kaastra J., Mineo T., *BeppoSAX LECS/MECS X-ray spectroscopy of the young supernova remnant N132D*, 1997, A&A 324, L45
23. Favata, F., **Vink J.**, Dal Fiume, D., Parmar, A., Santangelo, A., Mineo, T., Preite-Martinez, A., Kaastra J., Bleeker J., *The broad-band X-ray spectrum of the Cas A supernova remnant as seen by the BeppoSAX observatory*, 1997, A&A 324, L49
24. Mewe, R., Kaastra, J., Van den Oord, B., **Vink, J.**, Tawara, Y., *ASCA and EUVE observations of II Pegasi: flaring and quiescent coronal emission*, 1997, A&A 320, 147
25. **Vink, J.**, Kaastra, J., Bleeker, J., *A new mass estimate and puzzling abundances of SNR Cas A*, 1996, A&A, 307, L41
26. Van Genderen, A., et al., *A pulsating star inside eta Carinae. I. Light variations, 1992-1994*, 1995, A&A 304, 415
27. Sterken, C., et al., *Long-term photometry of variables at ESO. IV. The fourth data catalogue (1992-1994)*, 1995, A&AS 113, 31

### Selected other publications

- **Vink, J.**, *High Resolution X-ray Spectroscopy of SN 1006*, in proceedings of X-ray Diagnostics for Astrophysical Plasmas (astro-ph/0412447)
- **Vink, J.**, *Non-thermal X-ray Emission from Supernova Remnants*, in proceedings of the "International Symposium on High Energy Gamma-Ray Astronomy", eds. F.A. Aharonian and H. Völk (astro-ph/0409517)
- den Hartog, P. R., Kuiper, L., Hermsen, W., **Vink, J.**, *Detection of AXP 4U 0142+614 with INTEGRAL*, 2004, ATel 293
- den Hartog, P. R., et al., *IGR J00370+6122 - A new high-mass X-ray binary*, 2004, ATel 281
- **Vink, J.**, *Supernova Remnants: An Introductory Review*, 2004, in "Young Neutron Stars and Their Environments" (IAU Symposium 218, ASP Conf. Proc.), eds F. Camilo and B. M. Gaensler
- **Vink, J.**, *A Review of X-ray Observations of Supernova Remnants*, 2004, Nucl. Phys. B 132, 21, (Proceedings of the conference: "The restless high energy universe", Amsterdam, May 2003, E.P.J. van den Heuvel, J.J.M. in 't Zand, and R.A.M.J. Wijers (eds.) (astro-ph/0311406))
- **Vink, J.**, Laming, J. M., *The detection of the  $^{44}\text{Sc}$  nuclear de-excitation lines and hard X-ray emission from Cas A*, 2002, proceedings of the XXII Moriond Astrophysics Meeting "The Gamma-Ray Universe", eds. A. Goldwurm, D. Neumann, and J. Tran Thanh Van, The Gioi Publishers (astro-

ph/0205235)

- **Vink, J.**, Bleeker, J., Kaastra, J., van der Heyden, K., Dickel, J., *Non-thermal bremsstrahlung as the dominant hard X-ray continuum mechanism for the supernova remnant MSH14-63 (RCW86)*, 2002, in the proceedings of the symposium "New Visions of the X-ray Universe", F. Jansen (ed.) (astro-ph/0202210)
- **Vink, J.**, Bleeker, J., Kaastra, J., van der Heyden, K., Dickel, J., *XMM-Newton observations of MSH14-63 (RCW 86)*, 2002, in the proceedings of "Neutron Stars in Supernova Remnants", ASP Conference Series, P.O. Slane and B.M. Gaensler (eds)
- **Vink, J.**, *Three supernova remnants observed by BeppoSAX*, Proceedings of "The active X-ray sky", Rome, Italy, 21-24 October, 1997, Eds.: L. Scarsi, et al. (Elsevier)
- **Vink, J.**, Kaastra, J.S., Bleeker, J.A.M., *Absorption effects and line broadening in the X-ray spectrum of Cas A*, 1997, in "X-ray Imaging and Spectroscopy of Cosmic Hot Plasmas", F. Makino, K. Mitsuda (eds.), Universal Academy Press, Inc., Tokyo, Japan