

# Publications - Pierre OCVIRK

## Peer-reviewed articles

- [10] **P. Ocvirk**, and D. Aubert. A signature of the internal reionisation of the Milky Way?, *MNRAS Letters*, in press, **2011**.
- [9] P. Sánchez-Blázquez, **P. Ocvirk**, B.K. Gibson, I. Pérez, R.F. Peletier. Star formation history of barred disc galaxies, *MNRAS*, 415, 709, **2011**.
- [8] C. Pappalardo, A. Lançon, B. Vollmer, **P. Ocvirk**, S. Boissier, and A. Boselli. Pinning down the ram-pressure-induced halt of star formation in the Virgo cluster spiral galaxy NGC4388, a joint inversion of spectroscopic and photometric data, *A&A*, 514, id.A33, **2010**.
- [7] **P. Ocvirk**. Fake Star Formation Bursts: Blue Horizontal Branch Stars Masquerade as Young Massive Stars in Optical Integrated Light Spectroscopy. *ApJ*, 709:88–96, **2010**.
- [6] A. E. Sansom, R. G. Izzard, and **P. Ocvirk**. The impact of binary-star yields on the spectra of galaxies. *MNRAS*, 399:1012–1025, October **2009**.
- [5] D. Le Borgne, D. Elbaz, **P. Ocvirk**, and C. Pichon. Cosmic star-formation history from a non-parametric inversion of infrared galaxy counts. *A&A*, 504:727–740, **2009**.
- [4] **P. Ocvirk**, C. Pichon, and R. Teyssier. Bimodal gas accretion in the Horizon-MareNostrum galaxy formation simulation. *MNRAS*, 390:1326–1338, **2008**.
- [3] M. Koleva, P. Prugniel, **P. Ocvirk**, D. Le Borgne, and C. Soubiran. Spectroscopic ages and metallicities of stellar populations: validation of full spectrum fitting. *MNRAS*, 385:1998–2010, **2008**.
- [2] **P. Ocvirk**, C. Pichon, A. Lançon, and E. Thiébaud. STECKMAP: STELLAR Content and Kinematics from high resolution galactic spectra via Maximum A Posteriori. *MNRAS*, 365:74–84, **2006**.
- [1] **P. Ocvirk**, C. Pichon, A. Lançon, and E. Thiébaud. STECKMAP: STELLAR Content from high-resolution galactic spectra via Maximum A Posteriori. *MNRAS*, 365:46–73, **2006**.

## Peer-reviewed proceedings

- [CL1] **P. Ocvirk**, R. Peletier, and A. Lançon. Extragalactic archeology in integrated light: A test case with NGC 4030. *Astronomische Nachrichten*, 329:980–+, **2008**.

## Proceedings

- [C18] D. Katz, M. Cropper, F. Meynadier, A. Jean-Antoine, C. Allende Prieto, S. Baker, K. Benson, J. Berthier, F. Bigot, R. Blomme, S. Boudreault, L. Chemin, F. Crifo, Y. Damerджи, M. David, P. David, C. Delle Luche, C. Dolding, Y. Frémat, N. Gerbier, J. Gerssen, A. Gómez, E. Gosset, A. Guerrier, L. Guy, D. Hall, D. Hestroffer, H. Huckle, G. Jasiewicz, H.G. Ludwig, C. Martayan, T. Morel, A.T. Nguyen, **P. Ocvirk**, C. Parr, F. Royer, P. Sartoretti, G. Seabroke, E. Simon, M. Smith, C. Soubiran, M. Steinmetz, F. Thévenin, C. Turon, S. Udry, L. Veltz, Y. Viala. Gaia spectroscopy: processing, performances and scientific returns. In *EAS Publications Series*, 45:189–194, **2011**.
- [C17] **P. Ocvirk**, A. Lançon, B. Vollmer, C. Pichon, E. Thiébaud, C. Pappalardo, K. Riebe, H. Enke. Bayesian tools for the analysis of the spectra of galaxies and their stellar populations. In *ADA 6 - Sixth Conference on Astronomical Data Analysis*, **2010**.
- [C16] **P. Ocvirk**, C. Pichon, and R. Teyssier. Bimodal gas accretion in the HORIZON-MareNostrum galaxy formation simulation. In M. Heydari-Malayeri, C. Reyl'E, & R. Samadi, editor, *SF2A-2009: Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, held 29 June - 4 July 2009 in Besançon, France. Eds.: M. Heydari-Malayeri, C. Reylé and R. Samadi, p.211*, pages 211–+, **2009**.
- [C15] F. Meynadier, F. Crifo, D. Katz, F. Thévenin, J. Berthier, L. Bigot, C. Delle Luche, A. Doressoundiram, A. Gomez, A. Guerrier, D. Hestroffer, A.-M. . Hubert, G. Jasiewicz, A. Jean-Antoine, H. Ludwig, C. Martayan, A.-T. Nguyen, **P. Ocvirk**, B. Pichon, F. Royer, P. Sartoretti, A. Siebert, C. Soubiran, C. Turon, L. Veltz, and Y. Viala. GAIA RVS data reduction : the 6<sup>th</sup> dimension. In M. Heydari-Malayeri, C. Reyl'E, & R. Samadi, editor, *SF2A-2009: Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, held 29 June - 4 July 2009 in Besançon, France. Eds.: M. Heydari-Malayeri, C. Reylé and R. Samadi, p.63*, pages 63–+, **2009**.
- [C14] P. Prugniel, M. Koleva, **P. Ocvirk**, D. Le Borgne, and C. Soubiran. Spectrum interpolator for the ELODIE library. In M. Guainazzi & P. Osuna, editor, *Astronomical Spectroscopy and Virtual Observatory*, pages 219–+, October **2008**.
- [C13] P. Sánchez-Blázquez, D. Forbes, J. Strader, **P. Ocvirk**, J. Brodie, and R. Proctor. Stellar Population gradients in early-type galaxies. In A. Vazdekis & R. F. Peletier, editor, *IAU Symposium*, volume 241 of *IAU Symposium*, pages 391–394, **2007**.
- [C12] **P. Ocvirk**. A graphical user interface for STECKMAP. In A. Vazdekis & R. F. Peletier, editor, *IAU Symposium*, volume 241 of *IAU Symposium*, pages 193–194, **2007**.

- [C11] M. Koleva, P. Prugniel, **P. Ocvirk**, and D. Le Borgne. Age and metallicity of Galactic clusters from full spectrum fitting. In A. Vazdekis & R. F. Peletier, editor, *IAU Symposium*, volume 241 of *IAU Symposium*, pages 185–186, **2007**.
- [C10] M. Koleva, P. Prugniel, **P. Ocvirk**, D. Le Borgne, I. Chilingarian, and C. Soubiran. Comparison of different spectral population models. In A. Vazdekis & R. F. Peletier, editor, *IAU Symposium*, volume 241 of *IAU Symposium*, pages 183–184, **2007**.
- [C9] P. Prugniel, M. Koleva, **P. Ocvirk**, D. Le Borgne, and C. Soubiran. Analysis of stellar populations with large empirical libraries at high spectral resolution. In A. Vazdekis & R. F. Peletier, editor, *IAU Symposium*, volume 241 of *IAU Symposium*, pages 68–72, **2007**.
- [C8] **P. Ocvirk**. The transfer matrix: A tool for comparing single stellar population models. In F. Casoli, T. Contini, J. M. Hameury, & L. Pagani, editor, *SF2A-2005: Semaine de l’Astrophysique Francaise*, pages 641–+, December **2005**.
- [C7] **P. Ocvirk**, A. Lançon, C. Pichon, and E. Thiébaud. Star formation history of galaxies from optical integrated light spectra. In C. C. Popescu & R. J. Tuffs, editor, *The Spectral Energy Distributions of Gas-Rich Galaxies: Confronting Models with Data*, volume 761 of *American Institute of Physics Conference Series*, pages 87–90, **2005**.
- [C6] A. Lançon, **P. Ocvirk**, D. Le Borgne, C. Pichon, P. Prugniel, M. Fioc, B. Rocca-Volmerange, and C. Soubiran. Modelling and interpreting optical spectra of galaxies at R=10 000. In C. C. Popescu & R. J. Tuffs, editor, *The Spectral Energy Distributions of Gas-Rich Galaxies: Confronting Models with Data*, volume 761 of *American Institute of Physics Conference Series*, pages 79–86, **2005**.
- [C5] **P. Ocvirk**, C. Pichon, A. Lançon, and E. Thiébaud. Constraining stellar populations with high resolution spectra. In F. Combes, D. Barret, T. Contini, F. Meynadier, & L. Pagani, editor, *SF2A-2004: Semaine de l’Astrophysique Francaise*, pages 551–+, December **2004**.
- [C4] **P. Ocvirk**, A. Lançon, C. Pichon, P. Prugniel, D. Le Borgne, B. Rocca-Volmerange, M. Fioc, C. Soubiran, and E. Thiébaud. High resolution spectra of galaxies. *Astrophysics and Space Science*, 284:933–936, **2003**.
- [C3] **P. Ocvirk**, A. Lançon, C. Pichon, P. Prugniel, E. Thiébaud, D. Le Borgne, B. Rocca-Volmerange, M. Fioc, and C. Soubiran. Stellar populations and their kinematics from high and medium resolution spectra: mixed inversions. In F. Combes, D. Barret, T. Contini, & L. Pagani, editor, *SF2A-2003: Semaine de l’Astrophysique Francaise*, pages 309–+, **2003**.

- [C2] P. Prugniel, F. Simien, M. Fioc, D. Le Borgne, B. Rocca-Volmerange, **P. Ocvirk**, A. Lançon, C. Pichon, and C. Soubiran. The History of the Stellar Population of Bulges. In E. Perez, R. M. Gonzalez Delgado, & G. Tenorio-Tagle, editor, *Star Formation Through Time*, volume 297 of *Astronomical Society of the Pacific Conference Series*, pages 281–+, **2003**.
- [C1] D. Le Borgne, B. Rocca-Volmerange, A. Lançon, M. Fioc, **P. Ocvirk**, P. Prugniel, and C. Soubiran. Spectral synthesis of galaxies: from low to high spectral resolution. In F. Combes & D. Barret, editor, *SF2A-2002: Semaine de l’Astrophysique Francaise*, pages 347–+, **2002**.

## Technical documents Gaia/Radial Velocity Spectrograph

These documents detail various aspects of the data processing pipeline of RVS, the spectroscopic instrument of the Gaia space mission. These documents are available on Gaia Livelink only. Access is restricted to Gaia Data Processing and Anasysis Consortium members.

- [T5] H.E. Huckle, **P. Ocvirk**, K. Benson, and G. Seabroke. DU620 Software Test Report. GAIA-C6-TR-MSSL-HEH-008-3, **2010**.
- [T4] A. Jean-Antoine, A. Guerrier, D. Katz, **P. Ocvirk**, and L. Veltz. CU6 Software Design Document. GAIA-C6-SP-CNES-AJA-005-02, **2009**.
- [T3] H.E. Huckle, A. Guerrier, S.R. Rosen, D. Katz, and **P. Ocvirk**. WP620 Software Test Specification - Spectra Extraction Functions for Gaia/RVS. GAIA-C6-SP-MSSL-HEH-018-01, **2009**.
- [T2] H.E. Huckle, A. Guerrier, S.R. Rosen, D. Katz, and **P. Ocvirk**. WP620 Software Design Document - Spectra Extraction Functions for Gaia/RVS. GAIA-C6-SP-MSSL-HEH-004-05, **2009**.
- [T1] H.E. Huckle, A. Guerrier, S.R. Rosen, D. Katz, and **P. Ocvirk**. WP620 Software Requirements Specifications - Spectra Extraction Functions for Gaia/RVS. GAIA-C6-SP-MSSL-HEH-002-04, **2008**.

## Software

### Public software

[S2] **P. Ocvirk**, K. Riebe, and H. Enke. STECKMAP.cgi: A service for interpretation of galaxy spectra was created in collaboration with the e-science department of the Astrophysikalisches Institut Potsdam. It allows the user to run STECKMAP on a server, through a web interface: the user uploads his observed spectrum, provides a few model parameters (stellar population models to use, free kinematics, extinction model...), et launches the interpretation. A STECKMAP script then runs on the server and the results (stellar content and kinematics along with various diagnostics) are returned to the user in about 1 minute.**2010**.

<http://astar.aip.de:20202/cgi-bin/steckmapdisplay.pl>

[S1] **P. Ocvirk**. STECKMAP: STEllar Content and Kinematics via Maximum A Posteriori. This code is a tool for interpreting galaxy spectra in terms of stellar content. It provides a reconstruction of the stellar ages distribution, the age-metallicity relation, the extinction, and the kinematics of the observed population. The details of the method are given in articles [1] and [2], **2006**. The code can be downloaded from the address below.

<http://astro.u-strasbg.fr/~ocvirk/>

### Data processing of Gaia/Radial Velocity Spectrograph

[SG1] **P. Ocvirk**, Gaia/DPAC/CU6. PBM: Point Background Model for Gaia/RVS. First delivery to CNES en 2008. Written in java, developed under eclipse environment.

[SG2] **P. Ocvirk**, Gaia/DPAC/CU6. EBM: Extended Background Model for Gaia/RVS. First delivery to CNES en 2008. Written in java, developed under eclipse environment.