

Nils Ryde
Astrophysics
Type of address: Visiting address.
Professorsgatan 1
223 63
Lund
Sweden
Type of address: Postal address.
Box 118
221 00
Lund
Sweden
Email: nils.ryde@fysik.lu.se
Mobile: +46733901658
Phone: +46462221574



Research

My field of research is stellar spectroscopy. My main project deals with the origin of the galactic bulge and the chemical description of the Galactic Center and its connection to the inner 3 degrees of the bulge. The methodology I am using to achieve this goal is the investigation of giant stars in the bulge at high spectral resolution in the near-IR. A red thread through my research projects have been spectroscopy at high resolution with special emphasis on the opportunities that come with cutting-edge IR spectrometers and the development of methodologies for this new research field. See also www.astro.lu.se/~ryde

Qualifications

engineering physics, MSc , Departments at LTH

Employment

Professor, Office director

Astrophysics
Lund University
Lund, Sweden
2022 Dec 23 → present

Research outputs

M giants with IGRINS: III. Abundance trends for 21 elements in the solar neighborhood from high-resolution near-infrared spectra

Nandakumar, G., Ryde, N., Forsberg, R., Montelius, M., Mace, G., Jönsson, H. & Thorsbro, B., 2024 Apr 1, In: *Astronomy & Astrophysics*. 684, 23 p., A15.

Composition of Giants 1° North of the Galactic Center: Detailed Abundance Trends for 21 Elements Observed with IGRINS

Nandakumar, G., Ryde, N., Mace, G., Kaplan, K. F., Nieuwmunster, N., Jaffe, D., Rich, R. M., Schultheis, M., Agertz, O., Andersson, E., Sneden, C., Strickland, E. & Thorsbro, B., 2024 Mar, In: *Astrophysical Journal*. 964, 1, 14 p., 96.

A Wide Metallicity Range for Gyr-old Stars in the Nuclear Star Cluster

Thorsbro, B., Forsberg, R., Kordopatis, G., Mastropietro, A., Church, R. P., Rich, R. M., Ryde, N., Schultheis, M. & Nishiyama, S., 2023 Nov 1, In: *Astrophysical Journal Letters*. 1, L18, L18.

M giants with IGRINS: II. Chemical evolution of fluorine at high metallicities

Nandakumar, G., Ryde, N. & Mace, G., 2023 Aug 1, In: *Astronomy and Astrophysics*. 676, 11 p., A79.

Detailed α abundance trends in the inner Galactic bulge

Nieuwmunster, N., Nandakumar, G., Spitoni, E., Ryde, N., Schultheis, M., Rich, R. M., Barklem, P. S., Agertz, O., Renaud, F. & Matteucci, F., 2023 Mar 1, In: *Astronomy and Astrophysics*. 671, A94.

First r -process enhanced star confirmed as a member of the Galactic bulge

Forsberg, R., Rich, R. M., Nieuwmunster, N., Jönsson, H., Schultheis, M., Ryde, N. & Thorsbro, B., 2023 Jan 1, In: *Astronomy and Astrophysics*. 669, A17.

M giants with IGRINS: I. Stellar parameters and α -abundance trends of the solar neighborhood population

Nandakumar, G., Ryde, N., Casagrande, L. & Mace, G., 2023, In: *Astronomy and Astrophysics*. 675, A23.

The Galactic chemical evolution of phosphorus observed with IGRINS

Nandakumar, G., Ryde, N., Montelius, M., Thorsbro, B., Jönsson, H. & Mace, G., 2022 Dec, In: *Astronomy and Astrophysics*. 668, A88.

Chemical evolution of ytterbium in the Galactic disk*

Montelius, M., Forsberg, R., Ryde, N., Jönsson, H., Afşar, M., Johansen, A., Kaplan, K. F., Kim, H., Mace, G., Sneden, C. & Thorsbro, B., 2022 Sept, In: *Astronomy and Astrophysics*. 665, A135.

CO line observations of OH/IR stars in the inner Galactic Bulge: Characteristics of stars at the tip of the AGB

Olofsson, H., Khouri, T., Sargent, B. A., Winnberg, A., Blommaert, J. A. D. L., Groenewegen, M. A. T., Muller, S., Kastner, J. H., Meixner, M., Otsuka, M., Patel, N., Ryde, N. & Srinivasan, S., 2022 Sept, In: *Astronomy and Astrophysics*. 665, A82.

The Gaia-ESO Public Spectroscopic Survey: Implementation, data products, open cluster survey, science, and legacy

Randich, S., Bensby, T., Feltzing, S., Feuillet, D., Ryde, N., Walton, N. A. & et al., 2022, In: *Astronomy & Astrophysics*. 666

Observing early stellar nucleosynthesis

Ryde, N. & Harper, G., 2021 Dec, In: *Nature Astronomy*. 5, 12, p. 1212-1213 2 p.

Age and helium content of the open cluster NGC 6791 from multiple eclipsing binary members: III. Constraints from a subgiant

Brogard, K., Grundahl, F., Sandquist, E. L., Slumstrup, D., Jensen, M. L., Thomsen, J. B., Jørgensen, J. H., Larsen, J. R., Bjørn, S. T., Sørensen, C. T. G., Bruntt, H., Arentoft, T., Frandsen, S., Jessen-Hansen, J., Orosz, J. A., Mathieu, R., Geller, A., Ryde, N., Stello, D., Meibom, S., & 1 othersPlatais, I., 2021 May 1, In: *Astronomy and Astrophysics*. 649, 8 p., A178.

Atomic data for the Gaia-ESO Survey

Heiter, U., Lind, K., Bergemann, M., Asplund, M., Mikolaitis, Š., Barklem, P. S., Masseron, T., de Laverny, P., Magrini, L., Edvardsson, B., Jönsson, H., Pickering, J. C., Ryde, N., Bayo Arán, A., Bensby, T., Casey, A. R., Feltzing, S., Jofré, P., Korn, A. J., Pancino, E., & 10 othersDamiani, F., Lanzafame, A., Lardo, C., Monaco, L., Morbidelli, L., Smiljanic, R., Worley, C., Zaggia, S., Randich, S. & Gilmore, G. F., 2021, In: *Astronomy and Astrophysics*. 645, 63 p., A106.

VINTERGATAN III: how to reset the metallicity of the Milky Way

Renaud, F., Agertz, O., Andersson, E., Read, J. I., Ryde, N., Bensby, T., Rey, M. P. & Feuillet, D., 2021, In: *Monthly Notices of the Royal Astronomical Society*. 503, 4

VINTERGATAN - II. The history of the Milky Way told by its mergers

Renaud, F., Agertz, O., Read, J. I., Ryde, N., Andersson, E., Bensby, T., Rey, M. & Feuillet, D., 2021, In: *Monthly Notices of the Royal Astronomical Society*. 503, 4

Vintergatan - i. The origins of chemically, kinematically, and structurally distinct discs in a simulated milky way-mass galaxy

Agertz, O., Renaud, F., Feltzing, S., Read, J. I., Ryde, N., Andersson, E. P., Rey, M. P., Bensby, T. & Feuillet, D. K., 2021 , In: *Monthly Notices of the Royal Astronomical Society*. 503, 4, p. 5826-5845 20 p.

Fluorine in the Solar Neighborhood: The Need for Several Cosmic Sources

Ryde, N., Jönsson, H., Mace, G., Cunha, K., Spitoni, E., Afşar, M., Jaffe, D., Forsberg, R., Kaplan, K. F., Kidder, B. T., Lee, J. J., Oh, H., Smith, V. V., Sneden, C., Sokal, K. R., Strickland, E. & Thorsbro, B., 2020 Apr 14, In: *Astrophysical*

Journal. 893, 1, 37.

Sofia-exes observations of betelgeuse during the great dimming of 2019/2020

Harper, G. M., Dewitt, C. N., Richter, M. J., Guinan, E. F., Wasatonic, R., Ryde, N., Montiel, E. J. & Townsend, A. J., 2020 Apr 14, In: *Astrophysical Journal Letters*. 893, 1, L23.

Modelling the chemical evolution of Zr, La, Ce, and Eu in the Galactic discs and bulge

Grisoni, V., Cescutti, G., Matteucci, F., Forsberg, R., Jönsson, H. & Ryde, N., 2020 Feb, In: *Monthly Notices of the Royal Astronomical Society*. 492, 2, p. 2828-2834 7 p.

ALMA and VLA reveal the lukewarm chromospheres of the nearby red supergiants Antares and Betelgeuse

O'Gorman, E., Harper, G. M., Ohnaka, K., Feeney-Johansson, A., Wilkeneit-Braun, K., Brown, A., Guinan, E. F., Lim, J., Richards, A. M. S., Ryde, N. & Vlemmings, W. H. T., 2020, In: *Astronomy and Astrophysics*. 638, A65.

Detailed Abundances in the Galactic Center: Evidence of a Metal-rich Alpha-enhanced Stellar Population

Thorsbro, B., Ryde, N., Rich, R. M., Schultheis, M., Renaud, F., Spitoni, E., Fritz, T. K., Mastrobuono-Battisti, A., Origlia, L., Matteucci, F. & Schödel, R., 2020, In: *Astrophysical Journal*. 894, 1, 26.

Fluorine in the solar neighbourhood: Modelling the Galactic thick and thin discs

Grisoni, V., Romano, D., Spitoni, E., Matteucci, F., Ryde, N. & Jönsson, H., 2020, In: *Monthly Notices of the Royal Astronomical Society*. 498, 1, p. 1252-1258 7 p.

On the cosmic origin of fluorine

Ryde, N., 2020, In: *Journal of Astrophysics and Astronomy*. 41, 1, 34.

The Photospheric Temperatures of Betelgeuse during the Great Dimming of 2019/2020: No New Dust Required

Harper, G. M., Guinan, E. F., Wasatonic, R. & Ryde, N., 2020, In: *Astrophysical Journal*. 905, 1, 34.

Stellar population astrophysics (SPA) with the TNG: Identification of a sulphur line at $\lambda_{\text{air}} = 1063.6 \text{ nm}$ in GIANO-B stellar spectra

Ryde, N., Hartman, H., Oliva, E., Origlia, L., Sanna, N., Rainer, M., Thorsbro, B., Dalessandro, E. & Bono, G., 2019 Nov 1, In: *Astronomy and Astrophysics*. 631, L3.

Abundances of disk and bulge giants from high-resolution optical spectra: IV. Zr, La, Ce, Eu

Forsberg, R., Jönsson, H., Ryde, N. & Matteucci, F., 2019 Nov, In: *Astronomy & Astrophysics*. 631, 15 p., A113.

The inner two degrees of the Milky Way: Evidence of a chemical difference between the Galactic Center and the surrounding inner bulge stellar populations

Schultheis, M., Rich, R. M., Origlia, L., Ryde, N., Nandakumar, G., Thorsbro, B. & Neumayer, N., 2019 Jul, In: *Astronomy and Astrophysics*. 627, A152.

The origin of stellar populations in the Galactic bulge from chemical abundances

Matteucci, F., Grisoni, V., Spitoni, E., Zulianello, A., Rojas-Arriagada, A., Schultheis, M. & Ryde, N., 2019 Jun 25, In: *Monthly Notices of the Royal Astronomical Society*. 487, 4, p. 5363-5371 9 p., stz1647.

Abundances of disk and bulge giants from high-resolution optical spectra: III. Sc, V, Cr, Mn, Co, Ni

Lomaeva, M., Jönsson, H., Ryde, N., Schultheis, M. & Thorsbro, B., 2019 May 1, In: *Astronomy and Astrophysics*. 625, A141.

4MOST Consortium Survey 3: Milky Way Disc and Bulge Low-Resolution Survey (4MIDABLE-LR)

Chiappini, C., Minchev, I., Starkenburg, E., Anders, F., Fusillo, N. G., Gerhard, O., Guiglion, G., Khalatyan, A., Kordopatis, G., Lemasle, B., Matijevic, G., Queiroz, A. B. D. A., Schwabe, A., Steinmetz, M., Traven, G., Tremblay, P. -E., Valentini, M., Andrae, R., Arentsen, A., Bensby, T., & 17 others Bergemann, M., Casagrande, L., Church, R., Cescutti, G., Feltzing, S., Fouesneau, M., Grebel, E. K., Kovalev, M., McMillan, P., Monari, G., Rybizki, J., Ryde, N., Rix, H. -W., Walton, N., Xiang, M., Zucker, D. & Team, MIDABLE-L., 2019 Mar 1, In: *The Messenger*. 175, p. 30-34 5 p.

4MOST Consortium Survey 4: Milky Way Disc and Bulge High-Resolution Survey (4MIDABLE-HR)

Bensby, T., Bergemann, M., Rybizki, J., Lemasle, B., Howes, L., Kovalev, M., Agertz, O., Barklem, P., Battistini, C., Casagrande, L., Chiappini, C., Church, R., Feltzing, S., Ford, D., Gerhard, O., Kushniruk, I., Kordopatis, G., Minchev, I., McMillan, P., Rix, H. -W., & 2 othersRyde, N. & Traven, G., 2019 Mar 1, In: *Messenger*. 175, p. 35-38 4 p.

4MOST: Project overview and information for the First Call for Proposals

Agertz, O., Berbel, A. A., Aird, J., Amarsi, A., Anders, F., Andrae, R., Ansarinejad, B., Ansorge, W., Antilogus, P., Anwand -Heerwart, H., Arentsen, A., Arnadottir, A., Auger, M., Azais, N., Baade, D., Baker, G., Balbinot, E., Baldry, I. K., Banerji, M., Barden, S., & 292 othersBarklem, P., Barthélémy-Mazot, E., Battistini, C., Bauer, S., Bell, C. P. M., Bellido-Tirado, O., Bellstedt, S., Belokurov, V., Bensby, T., Bergemann, M., Bestenlehner, J. M., Bielby, R., Bilicki, M., Bland-Hawthorn, J., Boeche, C., Boland, W., Boller, T., Bongard, S., Bongiorno, A., Bonifacio, P., Boudon, D., Brooks, D., Brown, R., Brüggen, M., Brynnel, J., Brzeski, J., Buchert, T., Buschkamp, P., Caffau, E., Caillier, P., Carrick, J., Casagrande, L., Case, S., Casey, A., Cesarini, I., Cescutti, G., Chapuis, D., Chiappini, C., Childress, M., Christlieb, N., Church, R., Cioni, M. -R. L., Cluver, M., Colless, M., Collett, T., Comparat, J., Cooper, A., Couch, W., Courbin, F., Croom, S., Croton, D., Daguisé, E., Dalton, G., Davies, L. J. M., Davis, T., de Laverny, P., Deason, A., Dionies, F., Disseau, K., Doel, P., Döschner, D., Driver, S. P., Dwelly, T., Eckert, D., Edge, A., Youssoufi, D. E., Elhaddad, A., Enke, H., Erfanianfar, G., Farrell, T., Fechner, T., Feiz, C., Feltzing, S., Ferreras, I., Feuerstein, D., Feuillet, D., Finoguenov, A., Ford, D., Fotopoulou, S., Fouesneau, M., Frenk, C., Gaessler, W., Geier, S., Fusillo, N. G., Gerhard, O., Giannantonio, T., Giannone, D., Gibson, B., Gillingham, P., González-Fernández, C., Gonzalez-Solares, E., Gottloeber, S., Gould, A., Grebel, E. K., Gueguen, A., Guiglion, G., Haehnelt, M., Hahn, T., Hartman, H., Hauptner, K., Hawkins, K., Haynes, D., Haynes, R., Heiter, U., Helmi, A., Aguayo, C. H., Hewett, P., Hinton, S., Hobbs, D., Hoenig, S., Hofman, D., Hook, I., Hopgood, J., Hopkins, A., Hourihane, A., Howes, L., Howlett, C., Huet, T., Irwin, M., Iwert, O., Jablonka, P., Jahn, T., Jahnke, K., Jarno, A., Jin, S., Jofre, P., Johl, D., Jones, D., Jordan, C., Karovicova, I., Khalatyan, A., Kelz, A., Kennicutt, R., King, D., Kitaura, F., Klar, J., Klauser, U., Kneib, J. -P., Koch, A., Koposov, S., Kordopatis, G., Korn, A., Kosmalski, J., Kotak, R., Kovalev, M., Kreckel, K., Kripak, Y., Krumpe, M., Kuijken, K., Kunder, A., Kushniruk, I., Lamer, G., Laurent, F., Lawrence, J., Lehmitz, M., Lemasle, B., Lewis, J., Lidman, C., Liske, J., Lizon, J. -L., Loveday, J., Ludwig, H. -G., McDermid, R. M., Maguire, K., Mainieri, V., Mali, S., Mandel, H., Mandel, K., Mannerling, L., Martinez Delgado, D., Matijevic, G., McGregor, H., McMahon, R., McMillan, P., Mena, O., Merloni, A., Michel, C., Micheva, G., Migniau, J. -E., Minchev, I., Monari, G., Muller, R., Murphy, D., Muthukrishna, D., Nandra, K., Navarro, R., Ness, M., Nichani, V., Nichol, R., Nicklas, H., Niederhofer, F., Obreschkow, D., Oliver, S., Owers, M., Pai, N., Pankratow, S., Parkinson, D., Paschke, J., Paterson, R., Pecontal, A., Parry, I., Phillips, D., Pillepich, A., Pinard, L., Pirard, J., Piskunov, N., Plank, V., Plüsckie, D., Pons, E., Popesso, P., Power, C., Pragt, J., Pramskiy, A., Pryer, D., Quattri, M., Queiroz, A. B. D. A., Quirrenbach, A., Rahurkar, S., Raichoor, A., Ramstedt, S., Recio-Blanco, A., Reiss, R., Renaud, F., Revaz, Y., Rhode, P., Richard, J., Richter, A. D., Rix, H. -W., Robotham, A. S. G., Roelfsema, R., Romaniello, M., Rosario, D., Rothmaier, F., Roukema, B., Ruchti, G., Rupprecht, G., Rybizki, J., Ryde, N., Saar, A., Sadler, E., Sahlén, M., Salvato, M., Sassolas, B., Saunders, W., Saviauk, A., Sbordone, L., Schnurr, O., Scholz, R. -D., Schwope, A., Shanks, T., Sheinis, A., Sivov, T., Skúladóttir, Á., Smartt, S., Smedley, S., Sorce, J., Spitler, L., Starkenburg, E., Steinmetz, M., Stilz, I., Sullivan, M., Sutherland, W., Swann, E., Tamone, A., Taylor, E. N., Teillon, J., Tempel, E., ter Horst, R., Thi, W. -F., Tolstoy, E., Trager, S., Traven, G., Tremblay, P. -E., Tresse, L., Valentini, M., van de Weygaert, R., van den Ancker, M., Veljanoski, J., Venkatesan, S., Wagner, L., Wagner, K., Walcher, C. J., Waller, L., Walton, N., Winkler, R., Wisotzki, L., Worley, C. C., Worseck, G., Xiang, M., Yong, D., Zschegye, F. & Zucker, D., 2019, In: *The Messenger*. 175, p. 3-11 9 p.

Fluorine Abundances in the Galactic Disk

Guerço, R., Cunha, K., Smith, V. V., Hayes, C. R., Abia, C., Lambert, D. L., Jönsson, H. & Ryde, N., 2019, In: *Astrophysical Journal*. 885, 2, 139.

Systematic investigation of chemical abundances derived using IR spectra obtained with GIANO

Caffau, E., Bonifacio, P., Oliva, E., Korotin, S., Capitanio, L., Andrievsky, S., Collet, R., Sbordone, L., Duffau, S., Sanna, N., Tozzi, A., Origlia, L., Ryde, N. & Ludwig, H. G., 2019, In: *Astronomy and Astrophysics*. 622, A68.

The blue straggler V106 in NGC6791: A prototype progenitor of old single giants masquerading as young

Broggaard, K., Christiansen, S. M., Grundahl, F., Miglio, A., Izzard, R. G., Tauris, T. M., Sandquist, E. L., Vanden Berg, D. A., Jessen-Hansen, J., Arentoft, T., Bruntt, H., Frandsen, S., Orosz, J. A., Feiden, G. A., Mathieu, R., Geller, A., Shetrone, M., Ryde, N., Stello, D., Platais, I., & 1 othersMeibom, S., 2018 Dec 1, In: *Monthly Notices of the Royal Astronomical Society*. 481, 4, p. 5062-5072 11 p.

Chemical characterization of the inner Galactic bulge: North-South symmetry

Nandakumar, G., Ryde, N., Schultheis, M., Thorsbro, B., Jönsson, H., Barklem, P. S., Rich, R. M. & Fragkoudi, F., 2018 Aug 21, In: *Monthly Notices of the Royal Astronomical Society*. 478, 4, p. 4374-4389 16 p.

Fluorine in the solar neighborhood: Chemical evolution models

Spitoni, E., Matteucci, F., Jönsson, H., Ryde, N. & Romano, D., 2018 Apr 1, In: *Astronomy and Astrophysics*. 612, A16.

Near-infrared spectroscopic observations of massive young stellar object candidates in the central molecular zone

Nandakumar, G., Schultheis, M., Feldmeier-Krause, A., Schödel, R., Neumayer, N., Matteucci, F., Ryde, N., Rojas-Arriagada, A. & Tej, A., 2018 Jan 1, In: *Astronomy and Astrophysics*. 609, A109.

Evidence against Anomalous Compositions for Giants in the Galactic Nuclear Star Cluster

Thorsbro, B., Ryde, N., Schultheis, M., Hartman, H., Rich, R. M., Lomaeva, M., Origlia, L. & Jönsson, H., 2018, In: *Astrophysical Journal*. 866, 1, 52.

Detailed abundances for the old population near the galactic center. I. Metallicity distribution of the nuclear star cluster

Rich, R. M., Ryde, N., Thorsbro, B., Fritz, T. K., Schultheis, M., Origlia, L. & Jönsson, H., 2017 Dec 1, In: *The Astronomical Journal*. 154, 6, 239.

SOFIA-EXES Mid-IR Observations of [Fe II] Emission from the Extended Atmosphere of Betelgeuse

Harper, G. M., DeWitt, C. N., Richter, M. J., Greathouse, T. K., Ryde, N., Guinan, E. F., O'Gorman, E. J. & Vacca, W. D., 2017 Feb 10, In: *Astrophysical Journal*. 836, 1, 22.

Abundances of disk and bulge giants from high-resolution optical spectra: I. O, Mg, Ca, and Ti in the solar neighborhood and Kepler field samples

Jönsson, H., Ryde, N., Nordlander, T., Pehlivan, A., Hartman, H., Jönsson, P. & Eriksson, K., 2017 Feb 1, In: *Astronomy and Astrophysics*. 598, A100.

Abundances of disk and bulge giants from high-resolution optical spectra: II. O, Mg, Co, and Ti in the bulge sample

Jönsson, H., Ryde, N., Schultheis, M. & Zoccali, M., 2017 Feb 1, In: *Astronomy and Astrophysics*. 598, A101.

Fluorine in the Solar neighborhood: No evidence for the neutrino process

Jönsson, H., Ryde, N., Spitoni, E., Matteucci, F., Cunha, K., Smith, V. V., Hinkle, K. H. & Schultheis, M., 2017 Jan 20, In: *Astrophysical Journal*. 835, 1, 50.

The Cosmic Origin of Fluorine: An Astronomer's View on Fluorine Synthesis

Jönsson, H. & Ryde, N., 2017 Jan 13, *Modern Synthesis Processes and Reactivity of Fluorinated Compounds: Progress in Fluorine Science*. Elsevier, p. 1-6 6 p.

Detailed near-IR stellar abundances of red giants in the Inner Bulge and Galactic Center

Ryde, N., Rich, R. M., Thorsbro, B., Schultheis, M., Fritz, T. K. & Origlia, L., 2017, In: *Proceedings of the International Astronomical Union*. 13, S334, p. 82-85 4 p.

DETAILED ABUNDANCE ANALYSIS of A METAL-POOR GIANT in the GALACTIC CENTER

Ryde, N., Fritz, T. K., Rich, R. M., Thorsbro, B., Schultheis, M., Origlia, L. & Chatzopoulos, S., 2016 Nov 1, In: *Astrophysical Journal*. 831, 1, 40.

Temperatures and metallicities of M giants in the Galactic bulge from low-resolution K -band spectra

Schultheis, M., Ryde, N. & Nandakumar, G., 2016 Apr 28, In: *Astronomy and Astrophysics*. 590, A6.

A map of D/H on Mars in the thermal infrared using EXES aboard SOFIA

Encrenaz, T., Dewitt, C., Richter, M. J., Greathouse, T. K., Fouchet, T., Montmessin, F., Lefèvre, F., Forget, F., Bézard, B., Atreya, S. K., Case, M. & Ryde, N., 2016 Feb 1, In: *Astronomy and Astrophysics*. 586, A62.

Chemical Evolution of the Inner 2 Degrees of the Milky Way Bulge: [α/Fe] Trends and Metallicity Gradients

Ryde, N., Schultheis, M., Grieco, V., Matteucci, F., Rich, R. M. & Uttenthaler, S., 2016, In: *The Astronomical Journal*. 151, 1, 1.

HYPERFINE-DEPENDENT gf -VALUES OF Mn i LINES IN THE 1.49–1.80 μ m H BAND

Andersson, M., Grumer, J., Ryde, N., Blackwell-Whitehead, R., Hutton, R., Zou, Y., Jönsson, P. & Brage, T., 2015 Jan 1, In: *The Astrophysical Journal Supplement Series*. 216, 1, 9 p., 2.

A new nonlocal thermodynamical equilibrium radiative transfer method for cool stars Method and numerical implementation

Lambert, J., Josselin, E., Ryde, N. & Faure, A., 2015, In: *Astronomy & Astrophysics*. 580, A50.

Chemical abundances of M giants in the Galactic centre: A single metal-rich population with low [alpha/Fe]

Ryde, N. & Schultheis, M., 2015, In: *Astronomy & Astrophysics*. 573, A14.

Chemical evolution of the Galactic Centre

Grieco, V., Matteucci, F., Ryde, N., Schultheis, M. & Uttenthaler, S., 2015, In: *Monthly Notices of the Royal Astronomical Society*. 450, 2, p. 2094-2103

Kinematics and chemistry of recently discovered Reticulum 2 and Horologium 1 dwarf galaxies

Koposov, S. E., Casey, A. R., Belokurov, V., Lewis, J. R., Gilmore, G., Worley, C., Hourihane, A., Randich, S., Bensby, T., Bragaglia, A., Bergemann, M., Carraro, G., Costado, M. T., Flaccomio, E., Francois, P., Heiter, U., Hill, V., Jofre, P., Lando, C., Lanzafame, A. C., & 6 othersde Laverny, P., Monaco, L., Morbidelli, L., Sbordone, L., Mikolaitis, S. & Ryde, N., 2015, In: *Astrophysical Journal*. 811, 1, 62.

SOFIA/EXES observations of water absorption in the protostar AFGL 2591 at high spectral resolution

Indriolo, N., Neufeld, D. A., DeWitt, C. N., Richter, M. J., Boogert, A. C. A., Harper, G. M., Jaffe, D. T., Kulas, K. R., McKelvey, M. E., Ryde, N. & Vacca, W., 2015, In: *Astrophysical Journal Letters*. 802, 2, L14.

Systematic trend of water vapour absorption in red giant atmospheres revealed by high resolution TEXES 12 μ m spectra

Ryde, N., Lambert, J., Farzone, M., Richter, M. J., Josselin, E., Harper, G. M., Eriksson, K. & Greathouse, T. K., 2015, In: *Astronomy & Astrophysics*. 573, A28.

The Gaia-ESO Survey: A globular cluster escapee in the Galactic halo

Lind, K., Koposov, S. E., Battistini, C., Marino, A. F., Ruchti, G., Serenelli, A., Worley, C. C., Alves-Brito, A., Asplund, M., Barklem, P. S., Bensby, T., Bergemann, M., Blanco-Cuaresma, S., Bragaglia, A., Edvardsson, B., Feltzing, S., Gruyters, P., Heiter, U., Jofre, P., Korn, A. J., & 20 othersNordlander, T., Ryde, N., Soubiran, C., Gilmore, G., Randich, S., Ferguson, A. M. N., Jeffries, R. D., Vallenari, A., Allende Prieto, C., Pancino, E., Recio-Blanco, A., Romano, D., Smiljanic, R., Bellazzini, M., Damiani, F., Hill, V., de laverny, P., Jackson, R. J., Lardo, C. & Zaggia, S., 2015, In: *Astronomy & Astrophysics*. 575, L12.

Understanding AGB evolution in Galactic bulge stars from high-resolution infrared spectroscopy

Uttenthaler, S., Blommaert, J. A. D. L., Wood, P. R., Lebzelter, T., Aringer, B., Schultheis, M. & Ryde, N., 2015, In: *Monthly Notices of the Royal Astronomical Society*. 451, 2, p. 1750-1769

Is sulphur a typical alpha element?

Ryde, N., Jönsson, H. & Matrozis, E., 2014 Jan 1, In: *Memorie della Societa Astronomica Italiana*. 85, 269, p. 269-271 3 p., 85.

Chemical evolution of fluorine in the bulge High-resolution K-band spectra of giants in three fields

Jönsson, H., Ryde, N., Harper, G. M., Cunha, K., Schultheis, M., Eriksson, K., Kobayashi, C., Smith, V. V. & Zoccali, M., 2014, In: *Astronomy & Astrophysics*. 564, A122.

Fluorine in the Solar Neighborhood: Is It All Produced in Asymptotic Giant Branch Stars?

Jönsson, H., Ryde, N., Harper, G. M., Richter, M. J. & Hinkle, K. H., 2014, In: *Astrophysical Journal Letters*. 789, 2, L41.

MOONS: the Multi-Object Optical and Near-infrared Spectrograph for the VLT

Cirasuolo, M., Afonso, J., Caro, M., Flores, H., Maiolino, R., Oliva, E., Paltani, S., Vanzi, L., Evans, C., Abreu, M., Atkinson, D., Babusiaux, C., Beard, S., Bauer, F., Bellazzini, M., Bender, R., Best, P., Bezawada, N., Bonifacio, P., Bragaglia, A., & 87 others Bryson, I., Busher, D., Cabral, A., Caputi, K., Centrone, M., Chemla, F., Cimatti, A., Cioni, M-R., Clementini, G., Coelho, J., Crnojevic, D., Daddi, E., Dunlop, J., Eales, S., Feltzing, S., Ferguson, A., Fisher, M., Fontana, A., Fynbo, J., Garilli, B., Gilmore, G., Glauser, A., Guinouard, I., Hammer, F., Hastings, P., Hess, A., Ivison, R., Jagourel, P., Jarvis, M., Kaper, L., Kauffmann, G., Kitching, A. T., Lawrence, A., Lee, D., Lemasle, B., Licausi, G., Lilly, S., Lorenzetti, D., Lunney, D., Maiolino, R., Marmucci, F., McLure, R., Minniti, D., Montgomery, D., Muschielok, B., Nandra, K., Navarro, R., Norberg, P., Oliver, S., Origlia, L., Padilla, N., Peacock, J., Pedicini, F., Peng, J., Pentericci, L., Pragt, J., Puech, M., Randich, S., Rees, P., Renzini, A., Ryde, N., Rodrigues, M., Roseboom, I., Royer, F., Saglia, R., Sanchez, A., Schiavon, R., Schnetler, H., Sobral, D., Speziali, R., Sun, D., Stuik, R., Taylor, A., Taylor, W., Todd, S., Tolstoy, E., Torres, M., Tosi, M., Vanzella, E., Venema, L., Vitali, F., Wegner, M., Wells, M., Wild, V., Wright, G., Zamorani, G. & Zoccali, M., 2014, *Ground-based and Airborne Instrumentation for Astronomy V*. SPIE, Vol. 9147. p. 91470N

The Gaia-ESO Survey: radial metallicity gradients and age-metallicity relation of stars in the Milky Way disk

Bergemann, M., Ruchti, G., Serenelli, A., Feltzing, S., Alves-Brito, A., Asplund, M., Bensby, T., Grueters, P., Heiter, U., Hourihane, A., Korn, A., Lind, K., Marino, A., Jofre, P., Nordlander, T., Ryde, N., Worley, C. C., Gilmore, G., Randich, S., Ferguson, A. M. N., & 27 others Jeffries, R. D., Micela, G., Negueruela, I., Prusti, T., Rix, H. -W., Vallenari, A., Alfaro, E. J., Allende Prieto, C., Bragaglia, A., Koposov, S. E., Lanzafame, A. C., Pancino, E., Recio-Blanco, A., Smiljanic, R., Walton, N., Costado, M. T., Franciosini, E., Hill, V., Lardo, C., de Laverny, P., Magrini, L., Maiorca, E., Masseron, T., Morbidelli, L., Sacco, G., Kordopatis, G. & Tautvaisiene, G., 2014, In: *Astronomy & Astrophysics*. 565, A89.

The Gaia-ESO Survey: The analysis of high-resolution UVES spectra of FGK-type stars

Smiljanic, R., Korn, A. J., Bergemann, M., Frasca, A., Magrini, L., Masseron, T., Pancino, E., Ruchti, G., San Roman, I., Sbordone, L., Sousa, S. G., Tabernero, H., Tautvaisiene, G., Valentini, M., Weber, M., Worley, C. C., Adibekyan, V. Z., Allende Prieto, C., Barisevicius, G., Biazzo, K., & 82 others Blanco-Cuaresma, S., Bonifacio, P., Bragaglia, A., Caffau, E., Cantat-Gaudin, T., Chorniy, Y., de Laverny, P., Delgado-Mena, E., Donati, P., Duffau, S., Franciosini, E., Friel, E., Geisler, D., Gonzalez Hernandez, J. I., Gruyters, P., Guiglion, G., Hansen, C. J., Heiter, U., Hill, V., Jacobson, H. R., Jofre, P., Jönsson, H., Lanzafame, A. C., Lardo, C., Ludwig, H. -G., Maiorca, E., Mikolaitis, S., Montes, D., Morel, T., Mucciarelli, A., Munoz, C., Nordlander, T., Pasquini, L., Puzeras, E., Recio-Blanco, A., Ryde, N., Sacco, G., Santos, N. C., Serenelli, A. M., Sordo, R., Soubiran, C., Spina, L., Steffen, M., Vallenari, A., Van Eck, S., Villanova, S., Gilmore, G., Randich, S., Asplund, M., Binney, J., Drew, J., Feltzing, S., Ferguson, A., Jeffries, R., Micela, G., Negueruela, I., Prusti, T., Rix, H-W., Alfaro, E., Babusiaux, C., Bensby, T., Blomme, R., Flaccomio, E., Francois, P., Irwin, M., Koposov, S., Walton, N., Bayo, A., Carraro, G., Costado, M. T., Damiani, F., Edvardsson, B., Hourihane, A., Jackson, R., Lewis, J., Lind, K., Marconi, G., Martayan, C., Monaco, L., Morbidelli, L., Prisinzano, L. & Zaggia, S., 2014, In: *Astronomy & Astrophysics*. 570, A122.

Galactic chemical evolution of sulphur Sulphur abundances from the [SII] lambda 1082 nm line in giants

Matrozis, E., Ryde, N. & Dupree, A. K., 2013, In: *Astronomy & Astrophysics*. 559, A115.

What is the origin of the water vapour signatures in red giant stars?

Farzone, M., Ryde, N., Harper, G. M., Lambert, J., Josselin, E., Richter, M. J. & Eriksson, K., 2013, *EAS Publications Series*. EDP Sciences, Vol. 60. p. 155-159 5 p. (EAS Publications Series; vol. 60).

The very low mass multiple system LHS 1070. A testbed for model atmospheres for the lower end of the main sequence

Rajpurohit, A. S., Reyle, C., Schultheis, M., Leinert, C., Allard, F., Homeier, D., Ratzka, T., Abraham, P., Moster, B., Witte, S. & Ryde, N., 2012, In: *Astronomy & Astrophysics*. 545, A85.

Lumen Accipe et Imperti - Föreläsning och motivation

Ryde, N., Ryde, F. & Nymark, T., 2011, *Lednings- och kompetensutbildning/CED*. Irhammar, M., Amé, G. & Adell, H. (eds.). LUP, p. 24-30 7 p.

Sulphur abundances in halo giants from the [S II] line at 1082 nm and the [S II] triplet around 1045 nm

Jönsson, H., Ryde, N., Nissen, P. E., Collet, R., Eriksson, K., Asplund, M. & Gustafsson, B., 2011, In: *Astronomy & Astrophysics*. 530

Chemical abundances for 11 bulge stars from high-resolution, near-IR spectra

Ryde, N., Gustafsson, B., Edvardsson, B. & al., E., 2010, In: *Astronomy and Astrophysics*. 509, p. A20

Chemical abundances of 11 bulge stars from high-resolution, near-IR spectra

Ryde, N., Gustafsson, B., Edvardsson, B., Melendez, J., Alves-Brito, A., Asplund, M., Barbuy, B., Hill, V., Kaeufl, H. U., Minniti, D., Ortolani, S., Renzini, A. & Zoccali, M., 2010, In: *Astronomy & Astrophysics*. 509

CNO abundances in the Galactic bulge

Ryde, N., 2010, *Proceedings of the International Astronomical Union*. Cunha, K., Spite, M. & Barbuy, B. (eds.). Cambridge University Press, Vol. 265. p. 285-288

Prospects of stellar abundance studies from near-IR spectra observed with the E-ELT

Ryde, N., 2010, In: *Astronomical Notes - Astronomische Nachrichten*. 331, 4, p. 433-448

Abundances in bulge stars from high-resolution, near-IR spectra I. The CNO elements observed during the science verification of CRIRES at VLT

Ryde, N., Edvardsson, B., Gustafsson, B., Eriksson, K., Kaeufl, H. U., Siebenmorgen, R. & Smette, A., 2009, In: *Astronomy & Astrophysics*. 496, 3, p. 701-U141

Magnetic fields in M dwarf stars from high-resolution infrared spectra

Kochukhov, O., Heiter, U., Piskunov, N., Ryde, N., Gustafsson, B., Bagnulo, S. & Plez, B., 2009, *AIP Conference Proceedings*. American Institute of Physics (AIP), Vol. 1094. p. 124-129

Red supergiants as potential Type IIn supernova progenitors: Spatially Resolved 4.6 Mum CO Emission Around VY CMa and Betelgeuse

Smith, N., Hinkle, K. H. & Ryde, N., 2009, In: *The Astronomical Journal*. 137, 3, p. 3558-3573

Stellar spectroscopy in the infrared at high spectral resolution

Ryde, N., 2009, *Physica Scripta*. IOP Publishing, Vol. T134. p. 014001

TEXES observations of M supergiants: dynamics and thermodynamics of wind acceleration

Harper, G. M., Richter, M. J., Ryde, N., Brown, A., Brown, J., Greathouse, T. K. & Strong, S., 2009, In: *Astrophysical Journal*. 701, p. 1464-1483

Unveiling the Secrets of the Galactic bulge through stellar abundances in the near-IR: a VLT/Crires project

Ryde, N., 2009, *IAU Symposium Proceedings*. Andersen, J., Bland-Hawthorn, J. & Nordström, B. (eds.). Cambridge University Press, Vol. 254. p. 159-164

UV, IR, and mm studies of CO surrounding the red supergiant α Orionis (M2 lab)

Harper, G. M., Carpenter, K. G., Ryde, N., Smith, N., Brown, J., Brown, A. & Hinkle, K. H., 2009, *AIP Conference Proceedings*. American Institute of Physics (AIP), Vol. 1094. p. 868-871

Mg I emission lines at 12 and 18 mu m in K giants

Sundqvist, J. O., Ryde, N., Harper, G. M., Kruger, A. & Richter, M. J., 2008, In: *Astronomy & Astrophysics*. 486, 3, p. 985-993

Probing the mass-loss history of the unusual Mira variable R Hya through its infrared CO wind

Decin, L., Blomme, L., Reyniers, M., Ryde, N. & Hinkle, K. H., 2008, In: *Astronomy & Astrophysics*. 484, 2, p. 401-U55

The Galactic bulge: the VLT/Crires perspective

Ryde, N., 2008, *Physica Scripta*. IOP Publishing, Vol. T133. p. 014033

A First Study of Giant Stars in the Galactic Bulge based on Cries spectra

Ryde, N., Edvardsson, B., Gustafsson, B. & Käufel, H.-U., 2007, *Proceedings of the International Astronomical Union*. Vazdekis, A. & Peletier, R. F. (eds.). Cambridge University Press, Vol. 241. p. 260-261

The Determination of Stellar Parameters of Giants in the Galactic Disks and Bulge

Byström, J., Ryde, N., Feltzing, S., Holmberg, J. & Bensby, T., 2007, *Proceedings of the International Astronomical Union*. Vazdekis, A. & Peletier, R. F. (eds.). Cambridge University Press, Vol. 241. p. 235-236

Carbon stars in local group dwarf galaxies: C and O abundances

Wahlin, R., Eriksson, K., Gustafsson, B., Hinkle, K. H., Ryde, N. & Westerlund, B., 2006, In: *Memorie della Societa Astronomica Italiana*. 77, p. 955-960

Sulphur abundances in disk stars as determined from the forbidden 10821 Å[SI] line

Ryde, N., 2006, In: *Astronomy and Astrophysics Letters*. 455, p. L13-L16

Vintergatans bulb

Ryde, N., 2006, *Forskning och framsteg*, 2006, 8, p. 48-53.

Water Vapor on Betelgeuse as Revealed by TEXES High-Resolution 12 micron m

Ryde, N., Harper, G. M., Richter, M. J., Greathouse, T. & Lacy, J. H., 2006, In: *Astrophysical Journal*. 637, p. 1040-1055

Water Vapor on My Cep

Ryde, N., Richter, M. J., Harper, G. M., Eriksson, K. & Lambert, D. L., 2006, In: *Astrophysical Journal*. 645, p. 652-658

Interpretations of Gamma-Ray Burst Spectroscopy II. Bright BATSE Burst

Ryde, F., Kocevski, D., Bagoly, Z., Ryde, N. & Mészáros, A., 2005, In: *Astronomy and Astrophysics*. 432, p. 105-116

On the Origin of Sulfur

Ryde, N. & Lambert, D. L., 2005, *ASP Conference Proceedings*. Bash, F. & Barnes III, T. (eds.). Astronomical Society of the Pacific (ASP), Vol. 336. p. 355

Phoenix Spectra of Carbon Stars in the LMC

Wallin, R., Eriksson, K., Gustafsson, B., Hinkle, K. L., Lambert, D. L., Ryde, N. & Westerlund, B., 2005, *ESO Astrophysics Symposia*. Käufl, H. U., Siebenmorgen, R. & Moorwood, A. (eds.). Springer, p. 439

Sulphur abundances in metal-poor stars

Korn, A. & Ryde, N., 2005, In: *Astronomy and Astrophysics*. 443, p. 1029-1032

The Abundance of Elements in Cool Stars, as Determined from High-Resolution, 1-5 Micron Spectroscopy

Ryde, N., Gustafsson, B., Eriksson, K. & Wahlin, R., 2005, *ESO Astrophysics Symposia*. Käufl, H. U., Siebenmorgen, R. & Moorwood, A. (eds.). Springer, p. 365-376

Non-thermal emission of Mg I at 12 micron m from Procyon

Ryde, N. & Richter, M. J., 2004, In: *Astrophysical Journal Letters*. 611, p. L41-L43

On the galactic chemical evolution of sulfur

Ryde, N. & Lambert, D. L., 2004, In: *Astronomy and Astrophysics*. 415, p. 559-569

TEXES Observations of Betelgeuse: Dynamics and Thermodynamics of the Wind Acceleration Zone

Harper, G. M., Brown, A., Richter, M. J., Holmes, S. & Ryde, N., 2004, In: *Bulletin of the American Astronomical Society*. 36, p. 1425

The R Coronae Borealis stars: carbon abundances from forbidden C-lines

Pandey, G., Lambert, D. L., Rao, N. K., Gustafsson, B., Ryde, N. & Yong, D., 2004, In: *Monthly Notices of the Royal Astronomical Society*. 353, p. 143-152

The Zeeman-sensitive emission lines of Mg I at 12 micron m in Procyon
Ryde, N., Korn, A., Richter, M. J. & Ryde, F., 2004, In: *Astrophysical Journal*. 617, p. 551-558

What does the Unexpected Detection of Water Vapor in Arcturus' Atmosphere Tell us?
Ryde, N., Lambert, D. L., Lacy, J. H., Richter, M. J. & Greathouse, T. K., 2003, *ASP Conference Proceedings*. Turcotte, S. T. S. C. K. A. R. M. C., Keller, S. C. & Cavallo, R. M. (eds.). Astronomical Society of the Pacific (ASP), Vol. 293. p. 214

Detection of Water Vapor in the Photosphere of Arcturus
Ryde, N., Lambert, D. L., Richter, M. J. & Lacy, J. H., 2002, In: *Astrophysical Journal*. 580, p. 447-458

Probing the mass-loss history of carbon stars using CO line emission
Schöier, F. L., Ryde, N. & Olofsson, H., 2002, In: *Astrophysical Journal*. 580, p. 447-458

The 3 micron m spectrum of R Doradus observed with the ISO-SWS
Ryde, N. & Eriksson, K., 2002, In: *Astronomy and Astrophysics*. 386, p. 874-883

Water in Arcturus' Atmosphere
Ryde, N., Lambert, D. L., Lacy, J. H. & Richter, M. J., 2002, In: *Bulletin of the American Astronomical Society*. 34, p. 779

Activities

Côte d'Azur Observatory
Nils Ryde (Visiting researcher)
2019 Jun 24 → 2019 Jul 20

The Galactic bulge in context of the MOSAIC spectrograph for the ELT
Nils Ryde (Invited speaker)
2019 Mar

'Abundance trends in the Bulge'
Nils Ryde (Speaker)
2019 Feb

'Abundance trends in the Bulge'
Nils Ryde (Speaker)
2019 Jan

'Detailed Abundances of Giants in the Inner Bulge and Galactic Centre'
Nils Ryde (Speaker)
2018 Dec

'The Milky Way's disks and bulge'
Nils Ryde (Keynote/plenary speaker)
2018 Nov

'Detailed Near-IR Stellar Abundances of Red Giants in the Galactic Cluster'
Nils Ryde (Speaker)
2018 Oct

Press release from Lund University
Nils Ryde (Role not specified)
2018 Oct → 2018 Dec

'Detailed near-IR stellar abundances of the Galactic Centre'

Nils Ryde (Role not specified)

2018 Jan

'Detailed Abundances of Giants in the Inner Bulge and Galactic Centre'

Nils Ryde (Keynote/plenary speaker)

2017 Jul

'Detailed near-IR stellar abundances of the Galactic Centre'

Nils Ryde (Speaker)

2017 Jan

'Infrared Stellar Spectroscopy and Analysis'

Nils Ryde (Invited speaker)

2015 Nov

'Detailed near-IR stellar abundances of the Galactic Centre'

Nils Ryde (Speaker)

2015 Jan

Vilka hemligheter ruvar Vintergatans centrum på?

Nils Ryde (Speaker)

2010 Mar 31

Prizes and Distinctions

Excellent Teacher Practitioner (ETP)

Ryde, Nils (Recipient), 2012 Sept 21

Jury of Habilitation, Paris

Ryde, Nils (Recipient), 2019 Mar

Ledamot Kungl. Fysiografiska Sällskapet

Ryde, Nils (Recipient), 2021

Member of Sällskapet Lundaakademikerna

Ryde, Nils (Recipient), 2010 Apr

Royal Swedish Academy of Sciences Research Fellow

Ryde, Nils (Recipient), 2007 Sept 1

Awards

The Galactic Center as seen by MOONS

Ryde, N.

Swedish Research Council: SEK3,900,000.00

2024/01/01 → 2028/12/31

Projects

4MOST: 4MOST - massive spectroscopic surveys of the Milky Way and the Universe

Feltzing, S., Church, R., Hobbs, D., Bensby, T., Ryde, N., Hartman, H., Mcmillan, P., Jönsson, H., Agertz, O., Howes, L., Kushniruk, I., Agertz, O., Traven, G. & Feuillet, D.

2011/01/01 → 2029/12/31

Carl-TryggerStiftelse: Water on Stars

Ryde, N. & Lambert, J.

2012/01/01 → 2013/12/31

Crafoordska stiftelsen: Post doc for Henrik Jönsson

Ryde, N.

Gaia-ESO Survey

Gilmore, G., Randich, S., Feltzing, S., Bensby, T., Howes, L., Gruyters, P., Ryde, N., Stonkute, E. & Ruchti, G.

2012/12/24 → 2022/07/01

Kungl. Fysiografiska Sällskapet: Infrared stellar spectroscopy

Ryde, N.

2012/01/01 → 2013/12/31

Kungl. Fysiografiska Sällskapet: Stjärnspektroskopiska undersöksningar av Vintergatans bulb

Ryde, N.

2008/01/01 → 2009/12/31

KVA research fellow: Unveiling the Central Region of our Galaxy: How was it Formed and how did it Evolve?

Ryde, N.

2008/01/01 → 2012/12/31

PhD project: The cosmic origin of fluorine and sulphur: Infrared spectroscopic studies of red giants

Jönsson, H., Ryde, N. & Dravins, D.

2009/03/01 → 2015/06/05

PhD project: The origin and evolution of the Galactic Center

Thorsbro, B., Ryde, N., Jönsson, H. & Nilsson, H.

2016/07/01 → 2020/09/25

SOEB: Stiftelsen Olle Engkvist Byggmästare, Postdoc stipendium for Henrik Jönsson for two years

Ryde, N. & Jönsson, H.

2017/04/01 → 2019/04/01

The Galactic Center as seen by MOONS

Ryde, N. & Nandakumar, G.

Swedish Research Council

2024/01/01 → 2028/12/31

NMW: The New Milky Way

Feltzing, S., Bensby, T., Lindegren, L., Church, R., Hobbs, D., Ryde, N., Hartman, H., Mcmillan, P., Traven, G., Feuillet, D., Sahlholdt, C., Howes, L. & Stonkute, E.

Knut and Alice Wallenberg Foundation

2014/07/01 → 2027/06/30

VR-projektbidrag: Infraröd spektroskopi - ett nytt fönster mot galaktisk astronomi

Ryde, N.

2009/01/01 → 2013/12/31

VR-projektbidrag: Vintergatans ursprung - spektroskopiska undersökningar av stjärnpopulationer i Vintergatans centrum

Ryde, N.

2015/01/01 → 2017/12/31

