Section A: Overview of the Research Project

1. **Title of the research project:**
Stacking HI emission from high-redshift galaxies

2. Broad area of research:
Science

3. Academic level of research project:
Master's

4. Abstract of research:
The goal of this project will be to use HI data from the LADUMA large survey project (either deeper L-band data or first UHF-band data that will be available to the team by early 2025) to study a population of galaxies selected according to one or more shared properties including star formation rate, stellar mass, environmental density, etc., with the aim of investigating galaxy evolution at intermediate to high redshift. Given that HI emission is very faint, we expect most of the galaxies in the intermediate to high-redshift sample will not be directly detected in HI and we therefore plan to use the HI stacking method, supported by our large LADUMA spectroscopic catalogue, to determine average HI properties of the sample in different redshift intervals, i.e. over cosmic time.

5. Primary supervisor's details:

a. **Full name of primary supervisor:** Assoc. Prof. Sarah Blyth
b. **Email address:** sarah.blyth@uct.ac.za
c. **University:** University of Cape Town

Section B: Details of Research Project

1. Scientific merit:

How galaxies evolve over cosmic time is a key area of astronomy research and one of the motivating questions for the establishment of the SKA. Neutral atomic hydrogen, HI, which provides the reservoir from which molecular hydrogen, and eventually stars, can form, dominates the mass fraction of the interstellar medium (ISM) of galaxies and is detectable through its 21cm spin-flip transition by radio telescopes. One open question related to the gas content of galaxies and how it affects their evolution is: How do the HI masses of galaxies scale with their stellar masses and other properties in different environments and at different epochs? Large single-dish surveys such as ALFALFA have studied the gas content of galaxies in the local universe but it is only with the high-sensitivity SKA-pathfinder facilities, in particular MeerKAT, that it is now possible to probe HI emission beyond the local Universe out to higher redshifts.

The LADUMA large survey project on MeerKAT is a deep HI survey encompassing the Extended Chandra Deep Field South. The survey is using a combination of L-band and UHF-band observations on MeerKAT to probe the HI emission from galaxies over the last ~9 billion years of cosmic time ($0< z< 1.4$).

The goal of this project will be to use LADUMA data (either the deeper L-band datacube or first UHF-band datacube which is expected to be available by early 2025) to study a population of galaxies selected according to one or more shared properties including star formation rate, stellar mass, environmental density, etc. The project will utilise the HI stacking technique, supported by LADUMA's existing large spectroscopic redshift catalogue and sample selection will be achieved based on the multi-wavelength photometric catalogues in hand for the LADUMA field. The wide frequency ranges of both the L-band and UHF-band datasets will enable investigation of the HI properties of galaxies in these samples to be studied as a function of redshift to investigate their evolution.

2. Feasibility:

Data availability and analysis techniques:
This project will focus on intermediate to high-redshift LADUMA data where the galaxies are not likely to be either spatially resolved nor even directly detected. The project will therefore rely on the HI stacking method whereby galaxies are identified in optical catalogues, their spectra are extracted from the HI data cubes (detections and non-detections) and are stacked based on their redshifts (measured optically). This is a very useful technique in cases where the signal-to-noise ratio is too poor to directly detect individual galaxies and the HI properties of galaxy samples can then be measured on average. The student will use HI stacking software developed by LADUMA team members (e.g., Healy et al. 2019) and which is currently being used in various LADUMA analyses.

The data required for this project are already in hand: we expect to have the LADUMA deeper L-band and initial UHF-band data cubes released to the team before this project is due to start. LADUMA's large spectroscopic redshift catalogue consists of thousands of redshifts compiled

from both publicly available spectroscopy as well as proprietary LADUMA redshifts from the team's own campaigns. These will be used for the stacking measurements. In addition, substantial multi-wavelength photometry already exists and is available for galaxies in the LADUMA field as well as the derived products such as stellar masses, star formation rates, etc. These data will be used to determine the sample selection for stacking and analysis.

Resources and equipment:
As a UCT student and LADUMA team member, the student will have access to the IDIA/ilifu cloud computing facilities where the LADUMA data will be processed and analysed. Being at UCT will enable the student to interact with IDIA researchers and technical experts who will be able to help support the computing aspects. As a student in the Department of Astronomy, the student will also have access to the usual desk and office space, internet access and library access afforded to all postgraduate students.

High level breakdown of activities:
- Perform literature review on related HI studies and methods (2025)
- Use the photometric catalogues to determine the sample selection criteria for the galaxy sample to be studied (2025)
- Apply the sample selection criteria to the data to extract galaxy samples in different redshift bins (2025)
- Perform HI stacking analysis (2025)
- Analyse results including possible systematics from sample selection effects (2025 - 2026)
- Write up thesis (2026)

3. Relevance to SARAO research priority areas:
This project falls under the **highest priority area: MeerKAT** for science as listed in the application guide. The project will utilise data which is already in hand from the LADUMA Large Survey Project on MeerKAT.

4. Skills/experience useful to the student on this project:
Good python programming skills will be needed and experience in analyzing and working with HI data cubes will be an advantage. However, the student will learn these skills on the project if they have not yet had this experience.

Curriculum Vitae : SARAH-LOUISE BLYTH

Contact Information

R.W. James Building, Office 5.29
Department of Astronomy
University of Cape Town
Rondebosch, Cape Town, 7701, South Africa

Tel: +27 21 650 5372
Cell: +27 78 541 2969
E-mail: sarah.blyth@uct.ac.za

Research Interests

Galaxy evolution, radio astronomy (H I), large scale structure, Physics/Astronomy education

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Education

Ph.D. in High Energy Nuclear Physics, University of Cape Town, South Africa (2007)

(Hosted at Lawrence Berkeley National Laboratory, California, USA)
Thesis title: "Using the ϕ-meson to probe the medium created in Au+Au collisions at RHIC"

M.Sc. (*with distinction*) in High Energy Nuclear Physics, University of Cape Town, South Africa (2004)
(Hosted at Lawrence Berkeley National Laboratory, California, USA)
Thesis title: "Jet Study in Ultra-Relativistic Heavy-Ion Collisions with the ALICE Detector at the LHC"

BSc. (Hons) in Theoretical Physics, University of Cape Town, South Africa (1999)

BSc. in Physics and Astrophysics (*with distinction in Physics & the degree*), University of Cape Town, South Africa (1998)

Awards & Leadership Positions

– Co-Director National Astrophysics and Space Science Programme (NASSP), UCT-node (2018 - 2021) and (mid-2023 - present)
– Co-Chair of SKA HI Science Working Group (2018 - 2021, international invited position)
– Co-PI of LADUMA survey on MeerKAT (2009 - present)
– Chair of SARAO Users' Committee (2021 - 2023, member since 2018, national invited position)
– Member of the Pathfinder HI Coordination Committee (PHISCC) (2010 - present)
– Member of the Inter-University Institute for Data Intensive Astronomy (IDIA) Management Committee (2018 - 2021, and 2023 - present, invited University position)
– NRF C2 rating
– RHIC & AGS Thesis award for an outstanding thesis related to research conducted at the RHIC or AGS complex (2008)
– NRF Innovation Postdoctoral Fellowship (2008)
– Junior Representative on STAR Experiment Council (2006-2007)

Academic Experience

University of Cape Town, Cape Town, South Africa
(2024 -) Head of Department of Astronomy, University of Cape Town
(Jul 2023 - Dec 2023) Acting Head of Department of Astronomy, University of Cape Town
(2020 -) Associate Professor, Department of Astronomy, University of Cape Town
(2017 -) Deputy Head of Department
(2018 - 2021) & (mid-2023 -) Co-Director National Astrophysics and Space Science Programme - UCT node

(2016 - 2020) Senior Lecturer
(2009 - 2015) Lecturer
(2008) NRF Innovation Postdoctoral Fellow in Astronomy
(mid-end 2007) Postdoctoral Fellow in Astronomy (departmentally funded)

Lawrence Berkeley National Laboratory, Berkeley, California, USA
(2005 - 2006) Visiting Scholar (during PhD work)

Other Work Experience

(Aug 2001 - Dec 2002) *Management Consultant*, Pyxis Capital Management
(Mar 2000 - Jun 2001) *Business Analyst*, MarchFIRST

Absences

Maternity leave (October 2009 - January 2010)
Maternity leave (June 2012 - October 2012)

Supervision

Doctoral

Munira Hoosain, *co-supervised* (2021 -) (SARAO-funded)
Nadine Hank, *co-supervised* (2021 -) (University of Groningen)
Nazir Makda, *co-supervised* (2019 -)
Gerald Balekaki, *co-supervised*, (2016 -) (Computer science)
Tshiamiso Makwela, *co-supervised*, graduated 2022
Narges Hatamkhani, *co-supervised*, graduated 2022
Julia Healy, *co-supervised*, graduated 2021 (SARAO-funded, Joint degree UCT / University of Groningen)
Jamie Bok, *co-supervised*, (Upgraded from MSc.) graduated 2021
Tom Mutabazi, *supervised*, (upgraded from MSc.), graduated June 2015, (SKA-funded)

Masters

Lara Featherstone (SARAO-funded), *co-supervised*, (Jan 2024 -)
Tilman Oelgeschläger, *co-supervised*, (August 2022 -)
Munira Hoosain, *co-supervised*, (graduated 2022)
Nadine Hank (SARAO-funded), *supervised*, (graduated 2021)
Nazir Makda, *co-supervised*, (graduated 2020)
Julia Healy (SKA-funded), *supervised*, (graduated June 2017)
Scott Badenhorst, *co-supervised*, (graduated June 2015)
Christopher Schollar, *supervised*, (graduated June 2015)
Riona Ramraj, *co-supervised*, (graduated 2014)
Zara-Nomena Randriamanakoto, *co-supervised*, (graduated 2010)

Honours

1 Astronomy Hons student (Nadine Hank, 2017)
7 (previous) jointly supervised Computer Science Hons students

Postdoctoral

Abhisek Mohapatra, Postdoctoral Fellow on SARAO-UCT group grant (Jan 2024 -)
Jacinta Delhaize, SKA Postdoctoral Fellow (Aug 2018 - Jan 2022)
Natasha Maddox, SKA Postdoctoral Fellow (Aug 2011 - Jul 2014)

Successful Funding Proposals

Research funding

- NRF Competitive Support for Rated Researchers, R 792 800 (2021)
- UCT URC Travel Grant, R 14k (2018)
- NWO / NRF Cooperation Programme for HI Surveys (*SA PI*), R450k (*+ €15k p.a. NL*) (2017-2019)
- NRF Incentive funding, R40k p.a. (2016 - 2018)
- NWO / NRF Cooperation Programme for HI Surveys (*SA PI*), R450k (*+ €15k p.a. NL*) (2013-2016)
- NRF Multi-Wavelength Astronomy Research Programme, R127k (2015)
- URC Visiting Scholars Fund, R23k (2015)
- NRF Competitive Support for Unrated Researchers, R341k (2015-2017)
- UCT URC Travel Grant, R26k (2014)
- SKA-SA Mobility Grant, R10k (2014)

Teaching funding

- SARAO Block Grant, R720k (2024), *(undergraduate student bursaries)*
- SARAO Block Grant, R692k (2023), *(undergraduate student bursaries)*
- SARAO Block Grant, R774k (2020), *(undergraduate student bursaries)*
- SARAO Block Grant, R725k (2019), *(undergraduate student bursaries)*

Meeting Organisation

SOC, "IAU Symposium 392: Neutral Hydrogen in and around Galaxies in the SKA Era", to be held in Cape Town, South Africa, August 2024
SOC, "2023 PHISCC Workshop, HI Surveys in full swing", Cape Town, South Africa, March 2023
SOC, "A Precursor View of the SKA Sky", SKA Observatory Virtual Conference, March 2021
SOC, "2020 PHISCC Workshop", to be held in Cagliari, Italy May 2020, postponed due to Covid-19
SOC, "SKA General Science Meeting and Key Science Workshop 2019", Manchester, UK, April 2019
SOC, "SKA/SARAO Bursary Conference", Cape Town, South Africa, 2016, '17, '18, '19, '20, '21, '22, '23
LOC + SOC, "2016 PHISCC Workshop: Upgrading our HI Toolkit", Cape Town, South Africa, February 2016
LOC (Lead), Fourth LADUMA Team Meeting, Cape Town, South Africa, February 2016
SOC, "2015 PHISCC Workshop: HI Surveys Get Real, Rutgers", NJ, USA, March 2015
SOC, "Life-cycle of gas in galaxies: A local perspective" meeting, ASTRON, NL, August 2015
LOC + SOC, "5th Pathfinder HI Science Coordination Committee (PHISCC) Workshop", Cape Town, South Africa, January 2012
LOC (Lead), First LADUMA Team Meeting, Cape Town, South Africa, January 2012

Recent Conference Talks

Recent results from LADUMA, contributed talk at MeerKAT@5 Conference, Stellenbosch, February, 2024

LADUMA: Looking At the Distant Universe with the MeerKAT Array, talk presented at PHISCC: HI Surveys in Full Swing, Cape Town, March 2023

Probing Galaxy Merger Activity Via HI Asymmetries, short talk at MIAPP 2-week residential invited meeting on *Galaxy Evolution in a New Era of HI Surveys*, Garching, Germany, August 2019

Future high redshift observations of HI kinematics, invited talk at the Focus Meeting on Galactic Angular Momentum, IAU General Assembly, Vienna, August 2018

LADUMA: Looking at the Distant Universe with the MeerKAT Array, contributed talk at 11th Pathfinder HI Science Coordination Committee Workshop, Pingtang, China, June 2018

Recent Public Talks

The Science of Galaxies with MeerKAT, UCT Summer School lecture (2023)

Looking at Galaxies with Radio Eyes, talk to Grades 3-6 learners at International School of Cape Town, Cape Town (2023)

From the Dark Side of the Moon to Black Holes, UCT Summer School lecture (2020)

Looking at Galaxies with Radio Eyes, lecture to Astronomical Society of Southern Africa (2019)

The Solar System, talk to Grades 4-7 learners at Forres Preparatory School, Cape Town (2019)

LADUMA: Looking at the Distant Universe with the MeerKAT Array, lecture at ASSA Symposium (2018)

From MeerKAT to the SKA, lecture to Friends of the Hout Bay Museum (2018)

Publications

Astronomy & Astronomy Education:
First author means highest contribution and primary author. For student papers, the student is typically listed first and the supervisors directly afterwards.

The effect of cosmic web filaments on galaxy properties in the RESOLVE and ECO surveys, M. Hoosain, S-L. Blyth, R.E. Skelton, S.J. Kannappan, D.V. Stark, K.D. Eckert, Z.L. Hutchens, D.S. Carr, K. Kraljic, MNRAS, Volume 528, Issue 3, pp.4139-4159 (2024)

Measuring galaxy asymmetries in 3D, N. Deg, M. Perron-Cormier, K. Spekkens, M. Glowacki, S.-L. Blyth, N. Hank, MNRAS, Volume 523, Issue 3, pp.4340-4352 (2023)

Galaxy clusters in the Vela Supercluster - I: Deep NIR Catalogues, N. Hatamkhani, R.C. Kraan-Korteweg, S.L. Blyth, K. Said, A. Elagali, MNRAS, Volume 522, Issue 2, pp.2223-2240 (2023)

ASymba: H I global profile asymmetries in the SIMBA simulation, M. Glowacki, N. Deg, S.-L. Blyth, N. Hank, R. Davé, E. Elson, K. Spekkens, MNRAS, Volume 517, Issue 1, pp.1282-1298 (2022)

Looking at the Distant Universe with the MeerKAT Array: Discovery of a Luminous OH Megamaser at $z > 0.5$, M. Glowacki, J. Collier, A. Kazemi-Moridani, et al., ApJ, Volume 931, Issue 1, id.L7 (2022)

MeerKAT 21-cm HI imaging of Abell 2626 and beyond, J. Healy, T. Deb, M.A.W. Verheijen, S.-L. Blyth, P. Serra, M. Ramatsoku, B. Vulcani, A&A, Volume 654, id.A173 (2021)

Abell 2626 and friends: large and small scale structure, J. Healy, S.P. Willner, M.A.W. Verheijen, S.-L. Blyth, AJ, Volume 162, Issue 5, id.193 (2021)

HI content in Coma cluster substructure, J. Healy, S.-L. Blyth, M.A.W. Verheijen, K.M. Hess, P. Serra, J.M. van der Hulst, T.H. Jarrett, K. Yim, G.I.G. Jozsa, A&A, Volume 650, id.A76 (2021)

MIGHTEE: are giant radio galaxies more common than we thought?, J. Delhaize, I. Heywood, M. Prescott, M.J. Jarvis, I. Delvecchio, I.H. Whittam, S.V. White, M.J. Hardcastle, C.L. Hale, J. Alfonso, Y. Ao, M. Brienza, M. Bruggen, J.D. Collier, E. Daddi, M. Glowacki, N. Maddox, L.K. Morabito, I. Prandoni, Z. Randriamanakoto, S. Sekhar, F. An, N.J. Adams, S. Blyth, R.A.A. Bowler, L. Leeuw, L. Marchetti, S.M. Randriamampandry, K. Thorat, N. Seymour, O. Smirnov, A.R. Taylor, C. Tasse, M.

Vaccari, MNRAS, Volume 501, Issue 3, p3833-3845 (2021)

MIGHTEE-HI: The H I emission project of the MeerKAT MIGHTEE survey, N. Maddox, N., B.S. Frank, A.A. Ponomareva, M.J. Jarvis, E.A.K. Adams, R. Davé, T.A. Oosterloo, M.G. Santos, S.L. Blyth, M. Glowacki, R.C. Kraan-Korteweg, W. Mulaudzi, B. Namumba, I. Prandoni, S.H.A Rajohnson, K. Spekkens, N.J. Adams, R.A.A. Bowler, J.D. Collier, I. Heywood, S. Sekhar, A.R. Taylor, A&A, Volume 646, idA35 (2021)

Systematically Asymmetric: A comparison of HI profile asymmetries in real and simulated galaxies, N. Deg, S.-L. Blyth, N. Hank, S. Kruger, C. Carignan, MNRAS, Volume 495, Issue 2, p.1984-2001 (2020)

HISS, a new tool for H I stacking: application to NIBLES spectra, J. Healy, S.-L. Blyth, E. Elson, W. van Driel, Z. Butcher, S. Schneider, M.D. Lehnert, R. Minchin, MNRAS, Volume 487, Issue 4, p.4901-4938 (2019)

On the uncertainties of results derived from HI spectral line stacking experiments, E.C. Elson, A.J. Baker, S.-L. Blyth, MNRAS, Volume 486, Issue 4, p4894-4903 (2019)

Enhanced HI profile asymmetries in close galaxy pairs, J. Bok, S.-L. Blyth, D.G. Gilbank, E.C. Elson, MNRAS, Volume 484, Issue 1, p582-594 (2019)

HST H_α grism spectroscopy of ROLES: a flatter low-mass slope for the z∼1 SSFR-mass relation, Riona Ramraj, David G. Gilbank, Sarah-Louise Blyth, Rosalind E. Skelton, Karl Glazebrook, Richard G. Bower, Michael L. Balogh, MNRAS, Volume 466, Issue 3, p.3143-3160 (2017)

Synthetic data products for future HI galaxy surveys: a tool for characterising source confusion in spectral line stacking experiments, E.C. Elson, S.L. Blyth, A.J. Baker, MNRAS, Volume 460, Issue 4, p.4366-4381 (2016)

NIBLES – an HI census of stellar mass selected SDSS galaxies: I. The Nançay HI survey, W. van Driel, Z. Butcher, S. Schneider, M.D. Lehnert, R. Minchin, S-L. Blyth, L. Chemin, N. Hallet, T. Joseph, P. Kotze, R.C. Kraan-Korteweg, A.O.H. Olofsson, M. Ramatsoku, Astronomy & Astrophysics, Volume 595, id.A118, 43 (2016)

Exploring Neutral Hydrogen and Galaxy Evolution with the SKA, S.-L.Blyth, J.M. van der Hulst, M.A.W. Verheijen, HI SWG Members, B. Catinella, F. Fraternali, M.P. Haynes, K.M. Hess, B.S. Koribalski, C. Lagos, M. Meyer, D. Obreschkow, A. Popping, C. Power, L. Verdes-Montenegro, M. Zwaan (2015) PoS(AASKA14)128 (Chapter in revised SKA Science Book)

Variation of galactic cold gas reservoirs with stellar mass, N. Maddox, K.M. Hess, D. Obreschkow, M.J. Jarvis, S.-L. Blyth, MNRAS, Volume 447, Issue 2, p1610-1617 (2015)

The introductory astronomy course at the University of Cape Town: probing student perspectives, V. Rajpaul, S. Allie, S.-L. Blyth, Physical Review Special Topics - Physics Education Research (2014), Volume 10, Issue 2, id.020126

A Simple Model for Global H I Profiles of Galaxies, I.M. Stewart, S.-L. Blyth, W.J.G. de Blok, Astronomy & Astrophysics, Volume 567, A61, p27 (2014)

The Norma cluster (ACO 3627) - III. The distance and peculiar velocity via the near-infrared Ks-band Fundamental Plane, T. Mutabazi, S.-L. Blyth, P.A. Woudt, J.R. Lucey, T. H. Jarrett, M. Bilicki, A. Schroeder, S.A.W. Moore, MNRAS, Volume 439, Issue 4, p3666-3682 (2014)

Scalable desktop visualization of very large radio astronomy data cubes, S. Perkins, J. Questiaux, S.

Finniss, R. Tyler, S. Blyth, M.M. Kuttel, New Astronomy, 30, 17 (2014)

*Comparison of H*I *and optical redshifts of galaxies - the impact of redshift uncertainties on spectral line stacking*, Natasha Maddox, Kelley M. Hess, S.-L. Blyth, M.J. Jarvis, MNRAS, Volume 433, Issue 3, p.2613-2625 (2013)

Quantified H I morphology - VII. Star formation and tidal influence on local dwarf H I morphology, B. W. Holwerda, N. Pirzkal, W.J.G. de Blok, S.-L. Blyth, MNRAS, Volume 435, Issue 2, pp 1020-1036 (2013)

Quantified HI Morphology – I: Multi-wavelength analysis of the THINGS galaxies, B. W. Holwerda, N. Pirzkal, W.J.G. de Blok, A. Bouchard, S.-L. Blyth, K.J. Van der Heyden, E.C. Elson, MNRAS, Volume 416, Issue 4, pp 2401-2414 (2011)

Quantified HI Morphology - II: Lopsidedness and interaction in WHISP column density maps, B. W. Holwerda, N. Pirzkal, W.J.G. de Blok, A. Bouchard, S.-L. Blyth, K.J. Van der Heyden, E.C. Elson, MNRAS, Volume 416, Issue 4, pp 2415-2425 (2011)

Quantified HI Morphology – III: Merger visibility times from HI in galaxy simulations, B. W. Holwerda, N. Pirzkal, T.J. Cox, W.J.G. de Blok, J. Weniger, A. Bouchard, S.-L. Blyth, K.J. Van der Heyden, MNRAS, Volume 416, Issue 4, pp 2426-2436 (2011)

Quantified HI Morphology – IV: The merger fraction and rate in WHISP, B. W. Holwerda, N. Pirzkal, W.J.G. de Blok, A. Bouchard, S.-L. Blyth, K.J. Van der Heyden, MNRAS, Volume 416, Issue 4, pp 2437-2446 (2011)

Luminous Red Galaxies in Simulations: Cosmic Chronometers?, S. Crawford, A. Ratsimbazafy, C. Cress, E. Olivier, S.-L. Blyth, K.J. van der Heyden, MNRAS, Volume 406, Issue 4, pp.2569-2577 (2010)

Physics:
STAR Collaboration papers authorship strictly alphabetical in all cases, no matter primary author. Other papers, primary author is listed first.

Partonic flow and ϕ-meson production in Au+Au Collisions at $\sqrt{s_{NN}}$ = 200 GeV, B.I. Abelev et al., Physical Review Letters 99, 112301, (2007)
(This is my thesis paper for which I was primary author, but listed strictly alphabetically.)

A Cone Jet-Finding Algorithm for Heavy-Ion Collisions at LHC Energies, S-L Blyth. M.J. Horner, T. Awes, T. Cormier, J.L. Klay, S.R. Klein, M. van Leeuwen, A. Morsch, G. Odyniec, A. Pavlinov, Journal of Physics G: Nucl. Part. Phys. 34 (2007)

Longitudinal Double-Spin Asymmetry for Inclusive Jet Production in p+p Collisions at s=200GeV, B.I. Abelev et al., Physical Review Letters, vol. 100, Issue 23, id. 232003 (2008)

Enhanced strange baryon production in Au+Au collisions compared to p+p at $\sqrt{s_{NN}}$=200 GeV, B.I. Abelev et al., Physical Review C, vol. 77, Issue 4, id. 044908 (2008)

ρ_0 photoproduction in ultraperipheral relativistic heavy ion collisions at $\sqrt{s_{NN}}$=200 GeV, B.I. Abelev et al., Physical Review C, vol. 77, Issue 3, id. 034910 (2008)

Forward Neutral-Pion Transverse Single-Spin Asymmetries in p+p Collisions at s=200 GeV, STAR, B.I. Abelev et al., Physical Review Letters, vol. 101, Issue 22, id. 222001 (2008)

Forward Lambda production and nuclear stopping power in d + Au collisions at $\sqrt{s_{NN}}$ = 200 GeV (STAR Collaboration) B.I. Abelev et al., Physical Review C 76 (2007) 064904

Energy dependence of pi+-, p and anti-p transverse momentum spectra for Au+Au collisions at $\sqrt{s_{NN}}$ *= 62.4 and 200-GeV* (STAR Collaboration) B.I. Abelev et al., Physics Letters B 655 (2007) 104

Mass, quark-number, and $\sqrt{s_{NN}}$ *dependence of the second and fourth flow harmonics in ultra-relativistic nucleus-nucleus collisions* (STAR Collaboration), B.I. Abelev et al., Physical Review C 75 (2007) 054906

Rapidity and species dependence of particle production at large transverse momentum for d+Au collisions at $\sqrt{s_{NN}}$ *= 200 GeV* (STAR Collaboration), B.I. Abelev et al., Physical Review C 76 (2007) 054903

Strange particle production in p+p collisions at $\sqrt{s_{NN}}$ *= 200 GeV* (STAR Collaboration), B.I. Abelev et al., Physical Review C 75 (2007) 064901

Transverse momentum and centrality dependence of high-p(T) non-photonic electron suppression in Au+Au collisions at $\sqrt{s_{NN}}$ *= 200 GeV.* (STAR Collaboration), B.I. Abelev et al., Physical Review Letters 98 (2007) 192301

Delta phi Delta eta Correlations in Central Au+Au Collisions at $\sqrt{s_{NN}}$ *= 200 GeV* (STAR Collaboration) J. Adams et al., Physical Review C 75 (2007) 034901

Scaling Properties of Hyperon Production in Au+Au Collisions at $\sqrt{s_{NN}}$ *= 200 GeV.*, (STAR Collaboration), J. Adams et al., Physical Review Letters 98 (2007) 062301

Longitudinal Double-Spin Asymmetry and Cross Section for Inclusive Jet Production in Polarized Proton Collisions at $\sqrt{s_{NN}}$ *= 200 GeV*, B.I. Abelev et al., Physical Review Letters 97 (2006) 252001

Neutral Kaon interferometry in Au+Au collisions at $\sqrt{s_{NN}}$*=200 GeV*, B.I. Abelev et al., Physical Review C 74 (2006) 054902

Identified baryon and meson distributions at large transverse momenta from Au+Au collisions at $\sqrt{s_{NN}}$ *= 200 GeV*, (STAR Collaboration) B.I. Abelev et al., Physical Review Letters 97 (2006) 152301

The Multiplicity dependence of inclusive p(t) spectra from p-p collisions at $\sqrt{s_{NN}}$ *= 200 GeV*, (STAR Collaboration) J. Adams et al., Physical Review D 74 (2006) 032006

Proton - lambda correlations in central Au+Au collisions at $\sqrt{s_{NN}}$ *= 200-GeV*, (STAR Collaboration), J. Adams et al., Physical Review C 74 (2006) 064906

Strange baryon resonance production in $\sqrt{s_{NN}}$ *= 200 GeV p+p and Au+Au collisions*,(STAR Collaboration) J. Adams et al., Physical Review Letters 97 (2006) 132301

Direct observation of dijets in central Au+Au collisions at $\sqrt{s_{NN}}$*=200 GeV*, (STAR Collaboration) J. Adams et al., Physical Review Letters 97 (2006) 162301

Forward neutral pion production in p+p and d+Au collisions at $\sqrt{s_{NN}}$ *= 200 GeV*, (STAR Collaboration) J. Adams et al., Physical Review Letters 97 (2006) 152302

Identified hadron spectra at large transverse momentum in p+p and d+Au collisions at $\sqrt{s_{NN}}$ *= 200 GeV*, (STAR Collaboration), J. Adams et al, Physics Letters B 637 (2006) 161

Multiplicity and pseudorapidity distributions of charged particles and photons at forward pseudorapidity in Au + Au collisions at $\sqrt{s_{NN}}$ *= 62.4 GeV*, (STAR Collaboration), J. Adams et al., Physical Review C 73 (2006) 034906

Directed flow in Au+Au collisions at $\sqrt{s_{NN}}$ *= 62 GeV*, (STAR Collaboration), J. Adams et al., Physical

Review C 73 (2006) 034903 4

Conference Proceedings

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