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## HEALTH, PHYSICAL EDUCATION AND SPORTS SCIENCES

### Publications, Theses and Presentations

*My Philosophy of Life*  
*While there is a will there is a way*

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#### Table of Contents

- Selected Research Contributions 1
- Key to Institutions 2
- Papers 2
- Manuals 13
- National Project 13
- Articles 13
- Dissertation 14
- Dissertation Submitted 15
- Dissertations (in progress) 15
- Theses Supervised 15
- Thesis (in progress) 15
- Synopsis (under preparation) 15
- Seminars and Conferences 15

#### Selected Research Contributions

- Snapshot of work in Physical Education, Health and Sports Sciences: (complete list is given on pages 2-17)

*Complete Citation on Page 2 (solo author)*

*Complete Citation on Page 2 (first author)*

*Complete Citation on Page 3 (first author)*

*Complete Citation on Page 4 (first author)*

- **Optimal-Mass Management in Obese Children:** [ngds-ku.org/Papers/J38.pdf](http://ngds-ku.org/Papers/J38.pdf)  
Published in *International Journal of Biology and Biotechnology*
- **Hairstyle, Clothing and Footwear for Gymnastic Activities in the Primary-School Setting**  
To be published in *Pamukkale Journal of Sport Sciences*
- **Primary-Physical-Education Practices in Pakistan & England:** [ngds-ku.org/Papers/J33.pdf](http://ngds-ku.org/Papers/J33.pdf)  
Published in *International Journal of Biology and Biotechnology*
- **Fitness for Primary-School Children:** [ngds-ku.org/Presentations/Fitness.pdf](http://ngds-ku.org/Presentations/Fitness.pdf)  
Presented during *the First Conference on Anthromathematics*

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§ National Testing Service Pakistan

# American Institute of Aeronautics and Astronautics

‡ The Abdus Salam International Center for Theoretical Physics, Trieste, Italy

∇ The Aga Khan University Medical College, Karachi

ε Anthromathematics Group <http://anthromath.uok.edu.pk>

© Higher Education Commission, Government of Pakistan

¶ Transparency International Pakistan

‡ International Brain Research Organization

‡ The Early Talent Research Participation Program

ε American Association for Health, Physical Education, Recreation and Dance

ε The NGDS Pilot Project <http://ngds.uok.edu.pk>

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Page 1 of 17

- Key to Institutions**
- Albert Einstein College
  - Indiana University
  - Johns Hopkins University
  - Karachi University
  - Lund University
  - Oklahoma University
  - Sir Syed University
- For each item, the line containing **AUTHORSHIP(S)** mentions, in the left-hand column, name of the institution (listed, below, alphabetically), where the work was performed:
- The Albert Einstein College of Medicine, Bronx, New York 10461, USA
  - Indiana University, Bloomington, Indiana 47405, USA
  - The Johns Hopkins University, Homewood Campus, Baltimore, Maryland 21218, USA
  - University of Karachi, University Road, Karachi 75270, Pakistan
  - University of Lund, Malmö General Hospital (Spinal Unit), S-21401, Malmö, Sweden
  - University of Oklahoma, Norman, Oklahoma 73019, USA
  - The Sir Syed University of Engineering and Technology, University Road, Karachi 75300, Pakistan
- Papers**
- Papers in health, physical education and sports sciences:
- 2015**
- Designing Curricula of Mathematics, which Produce Leader-Integrator of Tomorrow  
Describes 'Program in Sport and Anthromathematics'  
*Abstract* <http://www.ngds-ku.org/pub/jourabstB.htm#J39>:  
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*Abstract* <http://www.ngds-ku.org/pub/confabstB.htm#C127>:  
*PDF* <http://www.ngds-ku.org/Presentations/Research-Teaching-ComDev.pdf>
  - Medical Criteria for Induction into the Armed Forces of Pakistan: Cutoff heights for Still-Growing Youth  
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- Under Preparation**
- Psychological Testing, Physical Examination and Fitness Testing of Primary-School Children for Participation in Gymnastic Activities  
*Foreign Journal*  
Karachi University **KAMAL SA, Khan SR, Azeemi HI, Pamukkale Journal of Sport Sciences**
  - Applications of Small-, Medium- and Big-Built Classification for Personnel of the Armed Forces of Pakistan  
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  - Gait Analysis of 7-10-Year-Old Children of Karachi from Nutritional-Status Perspective  
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  - Differential-Spinal-Function Testing from Nutritional-Status Perspective  
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*PDF*  
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*Abstract*  
*PDF*  
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- Stunting Induced by Wasting — Wasting Induced by Stunting: A Case Study  
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*Abstract*  
*PDF*  
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*Abstract*  
*PDF*  
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  - Increasing Height through Diet, Exercise and Lifestyle Adjustment  
*Abstract*  
*PDF*  
 Karachi University  
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- Papers (continued)**
- Abstract*  
*PDF*  
Karachi University
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  - Diet-based Interventions and Vitamin-D Deficiency  
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  - Sensitivity and Specificity of Screening Tests  
Concepts of relative sensitivity and relative specificity introduced  
<http://www.ngds-ku.org/pub/confabstA.htm#C104>:  
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  - Importance of Standardization of Anthropometric Protocols  
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  - Rasterstereography in Scoliosis Detection and Management  
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  - Optimal-Weight Management through Diet, Exercise and Lifestyle Adjustment  
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- Papers (continued)**  
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Karachi University
- Growth-and-Obesity Roadmaps of Children  
Mathematical solution of childhood-obesity problem  
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**KAMAL SA**, Sarwar M, Razzaq UA, *the First Conference on Anthromathematics in the Memory of (Late) Syed Firdous (ANTHROMATHEMATICS 2013)*, Department of Mathematics, University of Karachi, Karachi, Pakistan and Government College, Hyderabad, Pakistan, September 4 & 5, 2013, abstract # Anthro13-01, p 7 — Prof. Dr. Z. K. Kazi and Prof. Dr. M. A. Shah Memorial Lecture
  - 3-D-Spinal-Column-Surface Analysis (Height and Curvature Maps) by Combining Moiré Fringe Topography and Rasterstereography with Back-Scatter-X-Ray-Scanning Technology  
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- 2012**
- Abstract  
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- Abstract  
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Karachi University

- Papers (continued)**  
Abstract  
PDF  
Karachi University
- Verification of Conversion Formulae for MUAC (Mid-Upper-Arm Circumference) on Skin and Clothing  
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  - Prevalence of Obesity among BS-Final-Year Students  
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  - 3-D-Optical Imaging (Moiré Fringe topography and Rasterstereography) in Diabetic-Foot Care of Children  
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  - Anthromathematics: A New Branch of Mathematics  
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- 2010**  
Abstract  
PDF  
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- Mathematics in the Life Sciences  
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- 2009**  
Abstract  
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- Biomedical Applications of 3-D Optical Imaging and Image Processing  
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  - The Integrated Educational System: A Pre-University Educational System for the Third Millennium  
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- 2008**  
Abstract  
PDF  
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*Founder, Project Director and Principal Investigator*
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<b>Dissertation Submitted</b>	<ul style="list-style-type: none"> <li>● Generating and Validating Growth-and-Obesity Roadmaps for the Pakistani Children Ansari SA, <i>PhD Dissertation</i> (completed, under compilation)</li> </ul>
<b>Dissertations (in progress)</b>	<ul style="list-style-type: none"> <li>● Growth-and-Obesity Vector-Roadmap Generated using Enhanced Anthropometric Techniques Naz AA, <i>PhD Dissertation</i></li> <li>● Gait Analysis using Moiré Fringe Topography and Rasterstereography (Simultaneous Recording) Rajput MK, <i>PhD Dissertation</i></li> <li>● Effective Decision Making for Presence of Scoliosis using Moiré Fringe Topography Sarwar M, <i>PhD Dissertation</i></li> <li>● Mathematical Modeling of Scoliosis Indicators in Growing Children Raza SK, <i>PhD Dissertation</i></li> <li>● Validation of Concept of Optimal Mass in Children and Adults Jamil N, <i>PhD Dissertation</i></li> </ul>
<b>Theses Supervised</b>	<ul style="list-style-type: none"> <li>■ Supervised theses of the following students (degrees awarded) for their work on modeling of heart, brain, child growth and validation of 3-D-bioimaging techniques — moiré fringe topography and rasterstereography</li> </ul>
<b>2014</b>	<ul style="list-style-type: none"> <li>● A Method to Generate Growth-and-Obesity Profiles of Children of Still-Growing Parents Jamil SS, <i>MPhil Thesis</i>, 2014 (unpublished)</li> </ul>
<b>2009</b>	<ul style="list-style-type: none"> <li>● Adult-Height and Adult-Weight Formulae for the Pakistani Population Jamil N, <i>MPhil Thesis</i>, 2009 (unpublished)</li> </ul>
<b>2006</b>	<ul style="list-style-type: none"> <li>● Physics and Geometry of Heart-Sound Quadrilateral Wasim M, <i>MPhil Thesis</i>, 2006 (unpublished)</li> </ul>
<b>1990</b>	<ul style="list-style-type: none"> <li>● Magnetobiology for Covariant and Generalized-Coupling Models (of Brain) Naeem M, <i>MSc Thesis</i>, 1990 (unpublished)</li> <li>● Effects of Gravitational Field on the Electro cortical Activity of Brain Ahmed SN, <i>MSc Thesis</i>, 1990 (unpublished)</li> </ul>
<b>Thesis (in progress)</b>	<ul style="list-style-type: none"> <li>● Accuracy, Precision and Reproducibility in Measurement of Masses (Weights) to Least Count of 0.01 kg Razzaq UA, <i>MPhil Thesis</i></li> </ul>
<b>Synopsis (under preparation)</b>	<ul style="list-style-type: none"> <li>● Mathematical Justification of Cutoff Height for Induction in the Armed Forces of Pakistan Nuaman M, <i>MPhil leading to PhD</i></li> </ul>
<b>Seminars and Conferences</b>	<ul style="list-style-type: none"> <li>■ Selected list, related to Health, Physical Education and Sports Sciences:</li> </ul>
September 4, 2014	<ul style="list-style-type: none"> <li>● The Second Conference on Anthromathematics and Sport Mathematics in the Memory of (Late) Hussain Ahmed Bilgirami <a href="http://www.ngds-ku.org/Anthromathematics/2014/Anthromathematics2014.pdf">http://www.ngds-ku.org/Anthromathematics/2014/Anthromathematics2014.pdf</a> Department of Mathematics, University of Karachi, Karachi, Pakistan and Government College, Hyderabad, Pakistan, Conference Chair</li> </ul>
<i>Flyer</i>	
May 17, 2014	<ul style="list-style-type: none"> <li>● Sports and Anthromathematics <a href="http://www.ngds-ku.org/Presentations/Sport_Mathematics.pdf">http://www.ngds-ku.org/Presentations/Sport_Mathematics.pdf</a> <a href="http://www.ngds-ku.org/Presentations/Sport_Mathematics/Additional_File.pdf">http://www.ngds-ku.org/Presentations/Sport_Mathematics/Additional_File.pdf</a> Seminar, 55<sup>th</sup> Annual Prize Distribution Function, Government College, Hyderabad, Pakistan</li> </ul>
<i>Handout Additional File</i>	

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- September 4 and, 5, 2013  
*Flyer*
- The First Conference on Anthromathematics in the Memory of (Late) Syed Firdous  
<http://www.ngds-ku.org/Anthromathematics/2013/Anthromathematics2013.pdf>  
Department of Mathematics, University of Karachi, Karachi, Pakistan and Government College, Hyderabad, Pakistan, Conference Chair
- April 10, 2013  
*Handout*
- Anthromathematics: Mathematics of the Third Millennium  
<http://www.ngds-ku.org/Presentations/AMTM.pdf>  
Seminar, Department of Mathematics, Federal Urdu University of Arts, Sciences and Technologies, Gulshan-é-Iqbal Campus, Karachi
- June 6, 2012  
*Handout*
- Anthromathematics in the Service of Community Medicine  
<http://www.ngds-ku.org/Presentations/KMDC.pdf>  
Seminar, Department of Community Health Sciences, Karachi Medical and Dental College (KMDC), Karachi, Pakistan
- November 24, 2011  
*Poster*
- Child-Health Monitoring through Tools of Anthromathematics  
<http://www.ngds-ku.org/Presentations/AFK.jpg>  
Seminar, Alliance Française de Karachi, Karachi, Pakistan
- February 19, 2011  
*Handout*
- From Anthropometry to Anthromathematics  
<http://www.ngds-ku.org/Presentations/Ziauddin.pdf>  
Faculty of Medicine Research Seminar, the Ziauddin University, Clifton Campus, Karachi, Pakistan
- January 24, 2009  
*Event Highlights Handout*
- Role of Mathematics in the Clinical Sciences  
<http://www.ngds-ku.org/Presentations/ICCBS.htm>  
<http://www.ngds-ku.org/Presentations/ICCBS.pdf>  
Seminar, the International Center for Chemical and Biological Sciences (ICCBS), University of Karachi, Karachi, Pakistan
- May 30, 2007
- The NGDS Pilot Project: A Bioinformatics Perspective  
Research Seminar, Bahria University, Karachi, Pakistan
- September 21, 2006
- The NGDS Pilot Project: Growth and Development of Pakistani Children  
Seminar, Department of Special Education, University of Karachi, Karachi, Pakistan
- March 4, 2006
- The ICP Model of Child Growth (Concluding Remarks)  
Seminar, Department of Mathematics, University of Karachi, Karachi, Pakistan
- February 20, 2006  
*Handout*
- The NGDS Pilot Project: Is Your Child Growing All Right?  
[http://www.ngds-ku.org/ngds\\_folder/Handout.pdf](http://www.ngds-ku.org/ngds_folder/Handout.pdf)  
Presentation, Beacon Light Academy, Karachi
- October 26, 2005
- The NGDS Pilot Project: Generating Growth Profiles of Children and Monitoring Spinal Curvatures  
Seminar, Department of Pediatrics, Dow University of Health Sciences, Karachi, Pakistan
- August 27, 2005
- The NGDS Pilot Project: Methods to Generate Detailed Growth Profile and Monitor Spinal Curvatures in Children  
Seminar, Departments of Pediatrics and Orthopedic Surgery, Frontier Medical College, Abbottabad, KP, Pakistan
- July 30, 2005
- Mathematical Modeling of Growth of Children (Concluding Remarks)  
Research Seminar, Department of Mathematics, University of Karachi, Karachi, Pakistan
- March 22, 2004
- The NGDS Pilot Project: Controlling Growth of a Child  
Seminar, Postgraduate Teaching Program, Department of Pediatrics, the Nishtar Medical College, Multan, Pakistan
- February 7, 2004
- Covariant-Generalized-Coupling Model of Global Electrocortical Activity  
Research Seminar, Department of Mathematics, University of Karachi, Karachi, Pakistan
- May 6, 2003
- The NGDS Pilot Project: Modeling Growth of the Future PAF Officers  
Seminar, Air War College, PAF Base 'Faisal', Karachi, Pakistan
- March 8, 2003
- The NGDS Pilot Project: Anthropometry and Growth Modeling of the Pakistani Children  
Research Seminar, Faculty of Pharmacy, University of Karachi, Karachi, Pakistan

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- March 5, 2003 • The Generalized-Coupling Model of Global Electro cortical Activity  
Research Seminar, Division of Biological and Biomedical Sciences, the Aga Khan  
University Medical College, Karachi, Pakistan
- January 22, 2003 • The NGDS Pilot Project: Anthropometry and Growth Modeling of the  
Pakistani Children  
Research Seminar, Division of Biological and Biomedical Sciences, the Aga Khan  
University Medical College, Karachi, Pakistan
- October 16, 2002 • The NGDS Pilot Project: Documenting and Modeling Growth of the  
Future Army Officers  
Presentation, Army Public School, 'O' Levels, Karachi, Pakistan
- April 24, 2002 • The NGDS Pilot Project: Documenting and Modeling Growth of the  
Pakistani Children  
Seminar, Postgraduate Teaching Program, Department of Pediatrics, the Aga Khan  
University Medical College, Karachi, Pakistan
- January 26, 2002 • The NGDS Pilot Project: Modeling Growth of the Pakistani Children  
Presentation, PAF (Fazaia) Degree College, Base 'Faisal', Karachi, Pakistan
- December 7, 2001 • The NGDS Pilot Project: Anthropometry of the Pakistani Children  
Presentation, Aureole High School, Karachi, Pakistan
- March 7, 1998 • 3-D Optical Imaging and Image Processing: Biomedical Applications  
MIBM Seminar, Department of Mathematics, University of Karachi, Karachi,  
Pakistan (coverage in April 1998 issue of the MEDICINE International)
- August 3, 1995 • A Mathematical Model of the Brain  
MIBM Seminar, Department of Mathematics, University of Karachi, Karachi, Pakistan
- July 3, 1993 • 3-D Optical Imaging: Medical Applications  
Guest Lecture, the Baqai Medical College, Karachi, Pakistan
- July 11, 1991 • 3-D Optical Imaging: Medical Applications  
Guest Lecture, the Aga Khan University Medical College, Karachi, Pakistan
- July 16, 1990 • 3-D Optical Imaging: Medical Applications  
Summer Luncheon Seminar, Harvard-MIT Center for Biomedical Engineering,  
Massachusetts Institute of Technology, Cambridge, Massachusetts, USA
- October 1988 • Medical Applications of Moiré Fringe Topography  
Participant Talk, College on Medical Physics, ICTP (the Abdus-Salam International  
Center for Theoretical Physics), Trieste, Italy
- April 25, 1987 • Moiré Topography in the Management of Spinal Deformities  
Guest Lecture, the Aga Khan University Medical College, Karachi, Pakistan

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*Web address of this document:* <http://www.ngds-ku.org/HPED/HPED.pdf>

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Page 17 of 17