
INTERNATIONAL CONFERENCE
ON
ALGEBRA, GEOMETRY, ANALYSIS AND THEIR APPLICATIONS
(ICAGAA-14)
(Under UGC-DRS Programme)
November 27-29, 2014

Organized by
Department of Mathematics
 (UGC-DRS & DST-FIST A-86314)
 Jamia Millia Islamia, New Delhi - 110025, India

Sponsored by

Linear precision (LP) and Wechspress (W-) coordinates
 $LP: p(u) = \sum_{i=0}^n p_i v_i W_i(u)$ linear
 Applying LP property for linear polynomials $p(u) = 1$ and $p(u) = u$, we get
 $p(u) = 1 \Rightarrow p(v_j) = 1, j \geq 1, j = 3$, thus $1 = \sum_{i=0}^n v_i W_i(u)$
 $p(u) = u \Rightarrow p(v_j) = v_j, j \geq 1, j = 3$, thus $u = \sum_{i=0}^n v_i W_i(u)$
 Thus, $(W_0(u), W_1(u), W_2(u), W_3(u), W_4(u))$ uniquely determine the point $u \in G$
 and (Dahmem, HPD,AG, 2001,HPD,AG,2002,2003) used these for high precision
 modelling and compared with the well known Be'zier Methods.

Prof. Anand Kumar
 Head, Faculty of Applied Sciences

Prof. K. P. Shukla
 Chair of Honorary

Prof. Shikha K. S. Choudhary
 Chair of Honorary

Prof. Naveen Choudhary
 Head and Lecturer

Prof. Naveen Choudhary
 Head and Lecturer





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Department of Mathematics
Jamia Millia Islamia

Welcomes the

International

Algebra, Geometry, Analysis and Applications
(ICAG)





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November 27-29, 2014



Prof. (Mrs.) K. K. Dewan
Offg. Vice-Chancellor
Chief Guest

AND THEIR APPLICATIONS

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Prof. Sharfuddin Ahmad
Dean, Faculty of Natural Science



Prof. H. P. Dikshit
Guest of Honour



Prof. (Mrs.) K. K. Dewan
Offg. Vice-Chancellor
Chief Guest





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on

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BARYCENTRIC COORDINATES
AND
THEIR MAPPING PROPERTIES

Wachspress and Meanvalue
Coordinates for Polygons



ONS

hpdsu

Systems of Global coordinates: Cartesian and Polar Coordinates

Systems of Local coordinates

An active area of research in **Computational Analysis and Geometry**

Uniquely defined with reference to given points

Useful for analysis and applications of local properties which lead to computationally convenient, characteristics /algorithms for analytical and geometric properties like smoothness, convergence etc

Barycentric Coordinates




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Prof. (Mrs.) S. K. Duman
Offg. Vice-Chancellor
Chief Guest

Prof. Nasrullah Ahmad
Head and Convener

Linear precision
LP: $p(u)$
Applying LP property
 $p(u) = 1 \Rightarrow p$
 $p(u) = u \Rightarrow p(u)$
Thus, $(W_1(u), W_{-1}(u), W_{-2}(u))$
and (Dahmem. HPD, AO, 2014)
modelling and compared

$$(\mathbb{R}^n, 0)$$

$$(X, x)$$

a parametrization of X at x := local homeomorphism of $(\mathbb{R}^n$

$$\varphi: U \rightarrow \tilde{U} \quad \text{homeo}$$

$\downarrow \quad \quad \downarrow$
 $0 \quad \quad x$

$$\varphi^*: U^* \rightarrow \tilde{U}^*$$

$\downarrow \quad \quad \downarrow$
 $0 \quad \quad x$

$$U \cup U^*$$





$$\begin{array}{ccc} \downarrow & & \\ \mathcal{L}(X) & \longrightarrow & \mathcal{L}(X) \\ \nabla & \longrightarrow & \mathcal{Q}_P(\nabla) = \nabla^2 \ln(P) \end{array} \quad \left[\nabla^2 \ln(P) \right]$$

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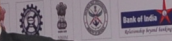
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