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# REPORTS ON CONFERENCES

## The Sixth National Mathematics Conference of Iran

The University of Petroleum and Minerals Mathematics faculty actively participated at the Sixth National Mathematics Conference of Iran, which was held at Jundi Shapur University in Ahvaz, Iran, on March 28-31, 1975. It was attended by Mathematicians from Asia, Western and Eastern Europe, Africa and America. The total attendance was 136, and there were 58 research presentations.

**Invited speakers**

The following talks were given by the invited speakers at the conference, in the order they were presented.

1. "Vector Lyapunov functions." Prof J.P. Lasalle, Brown University.
2. "Estimation of parameters in linear models." Prof. C.R.Rao, Indian Statistical Institute.
3. "Some remarks on the history of group theory." Prof. W. Ledermann, Sussex University.
4. "Equisingularity of curves." Prof. A. Wallace, Pahlave University.
5. "Contribution of information theory to statistics." Prof. M.D. Epaix, Mancy University.
6. "Characterizations of multivariate normal distribution." Prof. C.R. Rao, Indian Statistical Institute.
7. "Finite calculus." Prof. J.P. Lasalle, Brown University.

**Papers presented by UPM faculty**

The Mathematics Department at UPM was represented by four of its members at the conference. The following are abstracts of the papers presented by UPM faculty:

1. "Some oscillatory properties of fourth order ordinary homogeneous differential equations" by A. Benharbit.

   The paper examines the asymptotic behavior of oscillatory solutions of fourth order homogeneous differential equations. Given are two conditions on the coefficients of the differential equation.

   $$y^{IV} = p(x)y'' + q(x)y' + r(x)y$$

   which insure that all oscillatory solutions are bounded.

2. "On Al-Khwarizmi and his contribution to mathematics" by A. Daffa'a. Historical background of Al-Khwarizmi in short, with particular emphasis on his method for solving quadratic equations illustrated by solutions of three cases

   (1) $ax^2 + bx = c$, (2) $ax^2 + c = bx$,
   (3) $ax^2 = bx + c$.

3. "A class of infinitely connected domains and the corona" by W. Deeb.

   Let D be a bounded domain in the complex plane and let $H^\infty(D)$ be the algebra of bounded analytic on D. Let M(D) denote the maximal ideal space of $H^\infty(D)$.

   The domain D can be identified with an open subset of M(D) by identifying $\lambda$ with $\varnothing_\lambda$ where $\varnothing_\lambda(f) = f(\lambda)$

   The corona question asks whether D is dense in M(D).

   This paper generalizes a result by M. Behrens which constructs a special domain and shows that if the corona fails for any domain, it must fail for that particular domain.

4. "The spectrum of some special elements in the free Banach algebra" by A.H. Al-Moajil.

   Let F be the free semigroup with two generators and let $A = 1'(F)$.

   Given $f \in A$ let S(f) be the support of f and G(f) be the sub-semigroup generated by S(f). It is shown that if G(f) is freely generated by S(f), then the spectrum of f is equal to

   $\{\lambda \in C : |\lambda - f(e)| \leqslant \|f\| - |f(e)|\}$ where e is the empty word in F . It follows that the spectral radius of f is equal to $\|f\|$.