Madras
2-8-67

Dear Prof Balaguer

Thank you very much for your kind letter of 19-7-67. Once again I ~~am~~ thank you for your interest in getting me some grant, and also for your kind comments.

At present I am interested in "On Non-Homogeneous linear differential equations of infinite order with constant coefficients". In particular I am interested in a paper of R. D. Carmichael, Amer. J. Math Vol 58, 1936 pp. 473-486.

In which he proved the following theorem:

General Introduction:

~~Theorem~~: Let $F(z)$ and $\phi(x)$ denote two given integral functions, neither of them being identically equal to zero and write their power series expansions in the forms

$$(1) \qquad F(z) = \sum_{\nu=0}^{\infty} a_\nu z^\nu,$$

$$(2) \qquad \phi(x) = \sum_{\nu=0}^{\infty} s_\nu \frac{x^\nu}{\nu!}.$$

We consider the problem of constructing integral functions $y(x)$ satisfying the linear differential equation

$$(3) \qquad a_0 y + a_1 y' + a_2 y'' + \cdots = \phi(x).$$

of infinite order with constant coefficients. We shall say that $F(z)$ is the ~~char~~ "characteristic function belonging to the equation (3).

Theorem: A sufficient condition that $f(x)$, as defined by (2), shall be an

Theorem:- If $\phi(x)$ is an integral function, then $y(x)$ is also an integral function under some restrictions (see paper)

I have generalised the above one as follows.

Theorem:- If $\phi(x)$ is an integral function of order ρ and T then there exists an integral function having same order and type which satisfies the equation (3).

Thanking you once again

Sincerely yours
A R Reddy

I am hoping to be favoured with a positive reply regarding the ~~so~~ grant.

पहला मोड़ FIRST FOLD

BY AIR MAIL
PAR AVION
हवाई पत्र
AEROGRAMME

65 P. 65 P.
भारत INDIA

To Prof. F. SUNYER BALAGUER
Mas Batlle
~~Angel GUIMERA 36~~
~~Pral. 2º~~
~~BARCELONA - 17.~~
Vilajoan por
SPAIN
Figueras (Gerona)

दूसरा मोड़ SECOND FOLD

इस पत्र के अन्दर कुछ न रखिये NO ENCLOSURES ALLOWED

Recexpedido
17/8

भेजने वाले का नाम और पता:- SENDER'S NAME AND ADDRESS:-

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