

On a smootness of a linear pencil and its factor

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Let $L(t) = M(t)(Z - tI)$, where $L(t)$, $M(t)$ are matrix valued functions, Z is a quadratic matrix. If $M = M(t)$ is continuous and $L = L(t)$ is $n + 1 > p$ times differential at t_0 then $M = M(t)$ is $n + 1 - p$ times differentiable at t_0 . Here p is the maximal size of a Jordan chains of Z at t_0 .

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