

SOLVING SECOND-ORDER DIFFERENTIAL EQUATIONS BY DECOMPOSITION

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The subject of this talk are linear and quasilinear differential equations of second order that may be decomposed into first-order components with guaranteed solution procedure for obtaining closed-form solutions. These are homogeneous or inhomogeneous linear components, special Riccati components, Bernoulli, Clairaut or d'Alembert components. Procedures are described how they may be determined and how solutions of the originally given second order equation may be obtained from them. This makes it possible to solve new classes of differential equations and opens up a new area of research. The generalization of these procedures to partial differential equations in the plane is indicated.