Hering, Martin, Stohrer
„Physik für Ingenieure“
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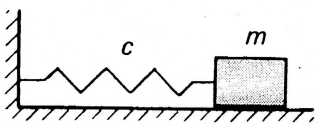
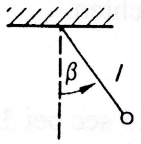
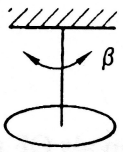
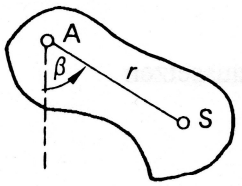
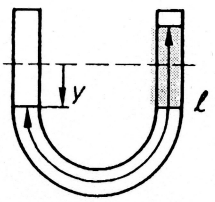
Schwingungssystem	Kraftansatz Differential- gleichung	ω_0
Feder-Masse-System 	$F = ma$ $-cy = m\ddot{y}$ $\ddot{y} + \frac{c}{m} y = 0$	$\sqrt{\frac{c}{m}}$
mathematisches Pendel 	$F = ma$ $-mg\beta = ml\ddot{\beta}$ $\ddot{\beta} + \frac{g}{l}\beta = 0$	$\sqrt{\frac{g}{l}}$
Torsionsschwinger 	$M = J_A \alpha$ $-c^*\beta = J_A\ddot{\beta}$ $\ddot{\beta} + \frac{c^*}{J_A}\beta = 0$	$\sqrt{\frac{c^*}{J_A}}$
physikalisches Pendel 	$M = J_A \alpha$ $-mgr\beta = J_A\ddot{\beta}$ $\ddot{\beta} + \frac{mgr}{J_A}\beta = 0$	$\sqrt{\frac{mgr}{J_A}}$
Flüssigkeitspendel 	$F = ma$ $-2A\rho g y = m_{ges}\ddot{y}$ $\ddot{y} + \frac{2A\rho g}{m_{ges}} y = 0$ $\ddot{y} + \frac{2g}{l} y = 0$	$\sqrt{\frac{2A\rho g}{m_{ges}}}$ $\sqrt{\frac{2g}{l}}$

Bild 5-14. Mechanische Schwingungssysteme mit ihren Differentialgleichungen und Eigenkreisfrequenzen ω_0.