CONORDISE. V(Y) = $\frac{1}{V_{1}}$ Conditions and the condition of the cond	Campo elettrico E generato $\mathbf{E} = \frac{qd \left(2\cos\left(\theta\right) \mathbf{u}_r + \sin\left(\theta\right) \mathbf{u}_\theta\right)}{4\pi\varepsilon r^3} \tag{71}$	$dP = J(\mathbf{r}) \cdot \mathbf{E}(\mathbf{r}) d\tau $ (95) $\cdot \mathbf{Resistori}$	qb
SENTALL (Greedgrant) (Greed			Periodo
(1) Early $A = -\sqrt{1}$ E. $A = -\sqrt{2}$ (2) $A = 0$ (3) $A = 0$ (5) $A = 0$ (5) $A = 0$ (6) $A = 0$ (7) $A = 0$ (8)			$T = \frac{2\pi m}{aB} \tag{120}$
(1) E = $-VV$ (2) $-II$ potentials è costante IV (3) $-II$ potentials è costante IV (3) $IV = \frac{1}{2}I_F /AV /V /V$	Momento torcente	$R_{eq} = \sum_{i=1} R_i \tag{96}$	Angolo deflessione elica (v 2 dimensioni)
(3) Everyta di B $\Delta V = 0$ (22) Le caride si distribuiscono sempre an $U = \frac{1}{2} \int_{\mathbb{R}^2} \rho_{\epsilon}(Y V \Gamma) d\tau$ (31) Le caride si distribuiscono sempre an Equation di Poisson (22) Pressione elettrostatica and Equation di Poisson (23) Pressione elettrostatica and Equation di Poisson (24) $\frac{\rho}{\sqrt{4}} \frac{F}{\sigma_0} \frac{\rho}{\rho} \frac{F}{\rho} \frac{\rho}{\rho} $	$\mathbf{M} = \mathbf{a} \times q\mathbf{E}(x, y, z) \tag{72}$	In parallelo	ABR (1991)
(2) $U = \frac{1}{2} \int_{\mathbb{R}^{2}} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (31) Increasing elementarian and the problem of $U = \frac{1}{2} \int_{\mathbb{R}^{2}} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (22) Pressions elementarian and the problem of $U = \frac{1}{2} \int_{\mathbb{R}^{2}} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (23) Pressions elementarian and $U = \frac{1}{2} \int_{\mathbb{R}^{2}} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (24) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (25) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (26) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (27) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (28) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (29) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) V(\mathbf{r}) d\mathbf{r}$ (20) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (21) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (21) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (22) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (23) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (24) $\nabla V(\mathbf{r}) = \frac{1}{4} \rho(\mathbf{r}) D\mathbf{r}$ (25) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (26) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (27) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (28) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (29) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (29) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (27) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (27) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (27) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (28) $\nabla \nabla^{2} V_{z} = \frac{1}{2} \rho(\mathbf{r}) D\mathbf{r}$ (29) $\nabla \nabla$	me	$R_{eq} = \left(\sum_{i=1}^{n} \frac{1}{R_i}\right)^{-1} \tag{97}$	$\sin(\sigma) = \frac{1}{mv} \tag{121}$
(3) $\nabla v^{1} = \frac{1}{-2}v_{0} \int_{\mathbb{R}^{2}} \mathbb{R}^{2} d\tau$ (22) Pressions electrostatical and poisson of the property of the prop	$\mathbf{M} = \mathbf{p} \times \mathbf{E} \tag{73}$	Generatore reale	rasso enca $A = \frac{2\pi R}{(199)}$
(3) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (33) $\nabla^{2}V_{2} = \frac{a}{c_{0}}$ (54) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (55) $\nabla^{2}V_{2} = \frac{a}{c_{0}}$ (57) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (58) $\nabla^{2}V_{2} = \frac{a}{c_{0}}$ (59) $\nabla^{2}V_{2} = \frac{a}{c_{0}}$ (70) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (71) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (72) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (73) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (74) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (75) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (75) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (75) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (76) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (77) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (78) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (79) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (70) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (70) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (70) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (71) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (71) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (72) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (73) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (74) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (75) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (75) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (76) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (77) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (77) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (77) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (78) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (79) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$ (70) $\nabla^{2}V_{1} = \frac{a}{c_{0}}$	otarlo	$\Delta V = V_0 - r_i I \tag{98}$	
(3) $\nabla^2 V_2 = \frac{\rho}{c_0}$ (3) $\nabla^2 V_2 = \frac{\rho}{c_0}$ (3) $\nabla^2 V_2 = \frac{\rho}{c_0}$ (5) Curica paratiforms (6) $E = \frac{q}{4\pi c_0 \rho^2} \mathbf{J}_{\mathbf{v}}$ (7) Sien carica uniformemente (8) $V(r) = \frac{q}{4\pi c_0 \rho^2} \mathbf{J}_{\mathbf{v}}$ (8) $V(r) = \frac{Q}{4\pi c_0 \rho^2} \mathbf{J}_{\mathbf{v}}$ (9) $V(r) = \frac{Q}{4\pi c_0 \rho^2} \mathbf{J}_{\mathbf{v}}$ (10) Guscio sofrico courica uniformemente (11) $E(r) = \frac{Q}{4\pi c_0 \rho^2} \mathbf{J}_{\mathbf{v}}$ (12) $E(r) = \frac{16\pi c_0 \rho}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (13) $V(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (14) Filo infinito con carica uniforme (15) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (16) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (17) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (18) $V(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (19) $V(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (10) Guscio sofrico convico uniformemente (11) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (10) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (11) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (12) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (13) $V(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (14) Filo infinito con carica uniforme (15) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (16) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (17) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (18) $V(r) = \frac{Q}{2\sigma} (e^{-r} + E) \mathbf{J}_{\mathbf{v}}$ (19) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (19) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (10) Expansion tendent electrone de condensatore (11) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (11) $E(r) = \frac{Q}{4\pi c_0 \rho} \mathbf{J}_{\mathbf{v}}$ (12) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (13) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (14) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (15) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (17) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (18) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (19) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (10) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (10) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (11) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (12) $E(r) = \frac{Q}{2\sigma} \mathbf{J}_{\mathbf{v}}$ (13) E	$W = \int_{\theta_i} M \mathrm{d}\theta \tag{74}$	· Leggi di Kirchhoff Legge dei nodi	■ INDUZIONE
(4) E e V di particolari distribuzioni $C = \frac{Q}{AV}$ (53) Carica puntiforme distribuzioni $C = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (34) distribuzioni control $V = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (35) Condensatori i più delle volte c'è indurione control su niformemente $V = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (36) Sera carcia uniformemente $V = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (56) Sera carcia uniformemente $V = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (57) Sera carcia uniformemente $V = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (57) Sera carcia uniformemente $V = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (58) Sera carcia uniformemente $V = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (57) $V_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (58) Sera carcia uniforme $V_{\nu} = \frac{q}{4\pi c_0 \rho^2} U_{\nu}$ (57) $V_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (57) $V_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (58) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (50) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (51) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (51) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (51) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (52) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (61) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (61) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (62) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (63) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (64) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (65) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (65) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (68) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (68) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (68) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (67) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (68) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (77) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (78) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (79) $U_{\nu} = \frac{Q}{4\pi c_0 \rho^2} U_{\nu}$ (Se E unitorme $W = pE[\cos(\theta_i) - \cos(\theta_f)] \tag{75}$	$\sum_{k=0}^{N} I_k = 0 \tag{99}$. Coefficient mutua induzione $\Phi_{1,2} = MI_1 \qquad \Phi_{2,1} = MI_2 \tag{123}$
(4) Cartes pountiforme $V = \frac{G}{4\pi c_0 J^2} U_V$ (5) Sign carte uniformemente (6) Sign carte uniformemente (7) $V = \frac{G}{4\pi c_0 J^2} U_V$ (8) $V(r) = \begin{cases} \frac{G}{4\pi c_0 J^2} \frac{P}{R^2} & 3c \ r < R \end{cases}$ (9) $V(r) = \begin{cases} \frac{G}{4\pi c_0 J^2} \frac{P}{R^2} & 3c \ r < R \end{cases}$ (10) Guerio seitor carico uniformemente (11) $E(r) = \begin{cases} \frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (12) $V(r) = \begin{cases} \frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (13) $V(r) = \begin{cases} \frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (14) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (15) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (16) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (17) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (18) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (19) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (19) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (10) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (10) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (10) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (11) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (12) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (13) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (14) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (15) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (16) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (17) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (18) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (19) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (10) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (10) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (10) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (11) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (12) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (13) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (14) $\frac{G}{4\pi c_0 J^2} & 3c \ r < R \end{cases}$ (15) $\frac{G}{4\pi c_0 J^2} & \frac{G}{4\pi c_0 J^2} $		k=0 Legge delle maglie	erato da 1 attraverse
(5) Sieve carier uniformemente (6) E(r) = $\begin{pmatrix} V = \frac{q}{4\pi c_0 r^2} 1 \mathbf{t}, \\ \frac{1}{4\pi c_0 r^2} \mathbf{t}, \\ \frac{q}{4\pi c_0 r} \\ \frac{q}{4\pi c_0 r} \mathbf{t}, \\ \frac{q}{4\pi c_0 r} $	Se E costante e uniforme	$\sum_{i} \Delta V_{i} = 0 \tag{100}$	$\Phi_{1,2} = NB_1\Sigma_2 \tag{124}$
(i) Sform cardica uniformemente Pramo (35) : Condensatori (56) (6) (7) = $\frac{V = \frac{d}{d\pi c_0 R^2}}{d}$ $\frac{B}{3c_0} \approx v + c R$ (7) $\frac{C}{d} \frac{c_0^2 L}{d} = \frac{B}{3c_0} \approx v + c R$ (7) $\frac{C}{d} \frac{c_0^2 L}{d} = \frac{B}{3c_0} \approx v + c R$ (7) $\frac{C}{d} \frac{c_0^2 L}{d} = \frac{B}{3c_0} \approx v + c R$ (7) $\frac{C}{d} \frac{c_0^2 L}{d} = \frac{B}{3c_0} \approx v + c R$ (7) $\frac{C}{d} \frac{d}{d} = \frac{B}{d} = B$	$\nu = \frac{1}{2\pi} \sqrt{\frac{pE}{I}} \tag{76}$		
(5) Sfera carica uniformemente Primo (7) $(1)^{2} = \begin{cases} \frac{Q^{r}}{4\pi c_{0}R^{2}} = \frac{2\rho}{3c_{0}} \text{ so } r < R \\ (7) (7) = \begin{cases} \frac{Q^{r}}{4\pi c_{0}R^{2}} = \frac{2\rho}{3c_{0}} \text{ so } r < R \\ \frac{Q^{r}}{4\pi c_{0}R^{2}} = \frac{2\rho}{3c_{0}} \text{ so } r < R \\ (8) (7) = \begin{cases} \frac{Q^{r}}{4\pi c_{0}R^{2}} - \frac{2\rho}{3c_{0}} \text{ so } r < R \\ \frac{Q^{r}}{4\pi c_{0}R^{2}} = \frac{2\rho}{3c_{0}} \text{ so } r < R \\ (9) (7) = \begin{cases} \frac{Q^{r}}{4\pi c_{0}R^{2}} - \frac{2\rho}{3c_{0}} + \frac$	Energia del dipolo	MAGNETOSTATICA Forza di Lorentz	
(6) $E(r) = \begin{cases} \frac{d\sigma_0}{d\pi} - \frac$	$U = -\mathbf{p} \cdot \mathbf{E} \tag{77}$	$\mathbf{F} = q\mathbf{v} \times \mathbf{B} \tag{101}$	$\Phi(\mathbf{B}) = IL \tag{125}$
(7) $V(r) = \begin{cases} \frac{AB_{co}}{4\pi c_0 R^2} & \text{se } r \ge R \end{cases}$ (7) $V(r) = \begin{cases} \frac{AB_{co}}{4\pi c_0 R^2} & \text{se } r \ge R \end{cases}$ (37) Cilindrico (Sindrico) (9) $V(r) = \begin{cases} \frac{AB_{co}}{4\pi c_0 R^2} & \text{se } r \ge R \\ \frac{Q}{4\pi c_0 R^2} & \text{se } r \ge R \end{cases}$ (37) Cilindrico (Sindrico) (10) Guscio sferico carico uniformenente (11) $E(r) = \begin{cases} \frac{Q}{4\pi c_0 R^2} & \text{se } r \ge R \\ \frac{AB_{co}}{4\pi c_0 R^2} & \text{se } r \ge R \end{cases}$ (38) $C_{co} = \frac{E_{co}}{4\sum_{i=1}^{n} C_i} \int_{i}^{-1} = (59)$ (10) $V(r) = \frac{A}{4\pi c_0 R^2} & \text{se } r \ge R \end{cases}$ (38) $C_{co} = \frac{E_{co}}{4\sum_{i=1}^{n} C_i} \int_{i}^{-1} = (59)$ (11) $E(r) = \begin{cases} \frac{Q}{4\pi c_0 R^2} & \text{se } r \ge R \\ \frac{AB_{co}}{4\pi c_0 R^2} & \text{se } r \ge R \end{cases}$ (38) $C_{co} = \frac{E_{co}}{4\sum_{i=1}^{n} C_i} \int_{i}^{-1} = (59)$ (10) $V(r) = \frac{A}{2\pi c_0} \int_{i}^{-1} r + (40) \int_{i}^{-1} C_i \int_{i}^{-1} r + (40) \int_{i}^{-1} C_i \int_{i}^{-1} r + (40) \int_{i}^{-1} C_i \int_{i}^{-1} r + (40) \int_{i}^$	· Forza agente sul dipolo	· Prima legge di Laplace	Solenoide ideale Nr2
(8) $V(r) = \begin{cases} \frac{\partial (3R^2 - r^2)}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ (10) & C_1 = \begin{pmatrix} \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ (11) & E(r) = \begin{pmatrix} \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ (12) & C_1 = \begin{pmatrix} \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ (13) & V(r) = \begin{pmatrix} \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ (13) & V(r) = \begin{pmatrix} \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{se } r < \mathbb{R} \\ (14) & \text{Elio infinito con carica uniforme } \lambda \\ \frac{\partial \sigma_0}{\partial r_0} & \text{Con dielettrico} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{Condensatore eirenpito di materiale di} \\ \frac{\partial \sigma_0}{\partial r_0} & \text{Condensatore pieno} \\ \frac{\partial \sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \text{Condensatore pieno} \\ \frac{\partial \sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \text{Condensatore pieno} \\ \frac{\sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \frac{\sigma_0}{\partial r_0} & \text{Condensatore pieno} \\ \frac{\sigma_0}{\partial r_0} & \sigma_0$	$\mathbf{F} = \nabla (\mathbf{p} \cdot \mathbf{E}) \tag{78}$	$\mathbf{B}(\mathbf{r}) = \frac{\mu_0 I}{4\pi} \oint \frac{\mathrm{d}\mathbf{s} \times \mathbf{u}_r}{r^2} $ (102)	$L = \mu_0 \frac{N}{L} \Sigma = \mu_0 n^2 L \Sigma \tag{126}$
(9) $V(r) = \begin{cases} \frac{Q}{4\pi \varepsilon_0 r} & \text{se } r \ge R \\ \frac{Q}{4\pi \varepsilon_0 r} & \text{se } r \ge R \end{cases}$ (7) Clindrico Gusco sairo carico uniformemente In serie $\frac{h}{h} \frac{\pi}{q}$ (8) $C_{q} = \frac{E}{k^2} \frac{h}{G_q}$ (8) $C_{q} = \frac{E}{k^2} \frac{h}{G_q}$ (7) $C_{q} = \frac{E}{k^2} \frac{h}{G_q}$ (8) $C_{q} = \frac{E}{k^2} \frac{h}{G_q}$ (9) $C_{q} = \frac{E}{k^2} \frac{h}{G_q}$ (1) Filo infinito con carica uniforme λ (1) Expressible on carica uniforme λ (1) Expressible on carica uniforme λ (1) Expressible internal del condensatore λ (1) Filo infinito con carica uniforme (1) Expressible internal del condensatore (1) Filo infinito con carica uniforme (1) Expressible internal del condensatore pieno (1) Expressible internal del condensatore pieno (1) Expressible internal Carica (1) Expressible internal C	Energia pot. tra due dipoli	$\mathbf{B}(\mathbf{r}) = \frac{\mu_0}{100} \int \frac{\mathbf{J} \times \mathbf{u}_r}{\mathbf{d}\tau} d\tau \tag{103}$	Toroide
(10) Guscio Serico carico uniformenente $C = \frac{1}{\ln \frac{1}{C}}$ (58) (11) $\mathbf{E}(r) = \begin{cases} 0 & 0 & \text{se } r < R \\ 4\pi z_0 R^2 & \text{se } r < R \\ 4\pi z_0 R^2 & \text{se } r < R \end{cases}$ (38) $C_{eq} = \left(\frac{n}{k^2} \frac{1}{k^2} \frac{1}{G}\right)^{-1}$ (59) (13) $V(r) = \begin{cases} \frac{Q}{4\pi z_0 R^2} & \text{se } r > R \\ 4\pi z_0 R^2 & \text{se } r > R \end{cases}$ (39) $C_{eq} = \left(\frac{n}{k^2} \frac{1}{G}\right)^{-1}$ (59) (14) Filo infinito con carica uniforme λ Con dielettrico (15) $\mathbf{E}(r) = \frac{\lambda}{2\pi z_0} \ln \frac{r}{r}$ (41) Energia interna del condensatore (16) $V(r) = \frac{\lambda}{2\pi z_0} \ln \left(\frac{r_0}{r}\right)$ (41) Energia interna del condensatore (17) $\mathbf{E} = \frac{\sigma}{2z_0} \ln r$ (42) $\mathbf{E} = \frac{Q^2}{2z_0} \ln r$ (63) (18) $V(x) = \frac{\sigma}{2z_0} (x^2 + R^2)^{3/2} u_x$ (43) $RQ'(t) + \frac{Q(t)}{C} = V$ (63) (20) $\mathbf{E}(x) = \frac{\sigma}{2z_0} (x^2 + R^2)^{3/2} u_x$ (44) C Condensatore piono (21) $V(x) = \frac{\sigma}{2z_0} (x^2 + R^2)^{3/2} u_x$ (45) C Condensatore ricinpito di materiale di resistività ρ Disco carico uniformemente $(x > R)$ (48) C Condensatore piono (22) $V(x) = \frac{\sigma}{2z_0} (x^2 + R^2 - x)$ (47) C Forza fra le armature (23) $V(x) = \frac{\sigma}{2z_0} (x^2 + R^2 - x)$ (47) C Condensatore piono (24) C Condensatore piono (25) C Condensatore piono (26) C Condensatore piono (27) C Condensatore piono (28) C Condensatore piono (29) C Condensatore piono (29) C Condensatore piono (20) C Condensatore piono (21) C Condensatore piono (22) C Condensatore piono (23) C Condensatore piono (24) C Condensatore piono (25) C Condensatore piono (26) C Condensatore piono (27) C Condensatore piono (28) C Condensatore piono (29) C Condensatore piono (20) C Condensatore piono (20) C Condensatore piono (21) C Condensatore piono (22) C Condensatore piono (23) C Condensatore piono (24) C Condensatore piono (25) C Condensatore piono (26) C Condensatore piono (27) C Condensatore piono (28) C Condensatore piono (29) C Condensatore pi	$U = \frac{[\mathbf{p}_1 \cdot \mathbf{p}_2 - 3(\mathbf{p}_1 \mathbf{u}_r)(\mathbf{p}_2 \cdot \mathbf{u}_r)]}{4\pi\varepsilon_0 r^3} $ (79)	_	$L = \frac{\mu_0 N^2 \pi a}{2\pi} \ln \left(\frac{R+b}{R} \right) \tag{127}$
(11) $\mathbf{E}(r) = \begin{cases} 0 & \sec r < \mathbf{R} \\ \frac{\partial \Phi_E}{4\pi \varepsilon_0 R} & \cos r > \mathbf{R} \end{cases}$ (38) $C_{eq} = \begin{pmatrix} \frac{\pi}{(e_1)} \frac{1}{C_i} \end{pmatrix}$ (59) (13) $V(r) = \begin{cases} \frac{\partial \Phi_E}{4\pi \varepsilon_0 R} & \sec r > \mathbf{R} \\ \frac{\partial \Phi_E}{4\pi \varepsilon_0 R} & \sec r > \mathbf{R} \end{cases}$ (39) $C_{eq} = \sum_{i=1}^{n} C_i \end{cases}$ (60) (14) File infinito con carica uniforme λ Con dielettrico (15) $\mathbf{E}(r) = \frac{\lambda}{2\pi \varepsilon_0 r} \mathbf{u}_r$ (41) $\mathbf{E}_{eq} = \sum_{i=1}^{n} C_i \end{cases}$ (61) (16) $V(r) = \frac{\lambda}{2\pi \varepsilon_0} \ln \frac{r}{r}$ (41) $\mathbf{E}_{eq} = \sum_{i=1}^{n} C_i = \frac{1}{2} C_i = \frac{1}{2$	Forza tra dipoli	9	· Fem autoindotta
$\frac{d\Phi_E}{dt} \qquad (12) \qquad \frac{V(r)}{4\pi \varepsilon_0 R} \qquad \text{se } r \ge R \qquad (2e_g = \left(\sum_{i=1}^{p} \frac{1}{C_i}\right) \qquad (59)$ $(13) \qquad V(r) = \begin{cases} \frac{Q}{4\pi \varepsilon_0 R} & \text{se } r \ge R \\ \frac{Q}{4\pi \varepsilon_0 r} & \text{se } r \ge R \end{cases} \qquad (39) \qquad C_{eg} = \sum_{i=1}^{p} C_i \qquad (60) \end{cases}$ $(14) \qquad \text{File infinite con carrier uniforme} \qquad Con dielettrico$ $(15) \qquad \mathbf{E}(r) = \frac{\lambda}{2\pi \varepsilon_0 r} \mathbf{u}, \qquad (41) \qquad \mathbf{E} \text{are gia interna del condensatore}$ $(15) \qquad \mathbf{E}(r) = \frac{\lambda}{2\pi \varepsilon_0 r} \mathbf{u}, \qquad (41) \qquad \mathbf{E} \text{are gia interna del condensatore}$ $(17) \qquad \mathbf{E} = \frac{\sigma}{2\varepsilon_0} \mathbf{u}, \qquad (42) \qquad \mathbf{Differenziale circuite} \ RC \qquad (62) \qquad (63) \qquad (18) \qquad V(x) = \frac{\sigma}{2\varepsilon_0 r^2 + R^2} \mathbf{e}^{-1} R^2 \qquad (44) \qquad \mathbf{E} \mathbf{e}^{-1} \mathbf{e}^{-1} \mathbf{e}^{-1} \qquad (64) \qquad (20) \qquad \mathbf{E} \mathbf{e}^{-1} \mathbf{e}$	Dipon concord = F repulsiva $\mathbf{F} = \frac{3p_1p_2}{n} \mathbf{R}$ (80)	$\mathbf{F} = \int I(\mathrm{d}\mathbf{s} \times \mathrm{d}\mathbf{B}) \tag{105}$	$\Phi = -L\frac{\mathrm{d}I}{\mathrm{d}t} \tag{128}$
(13) $V(r) = \begin{cases} \frac{Q}{4\pi c_0 R} & \text{se } r < R \\ \frac{A}{4\pi c_0 r} & \text{se } r > R \end{cases}$ (39) $C_{eq} = \sum_{i=1}^{n} C_i \end{cases}$ (14) Filo infinito con carica uniforme λ (15) $E(r) = \frac{\lambda}{2\pi c_0} \mathbf{u}_r$ (16) $V(r) = \frac{\lambda}{2\pi c_0} \ln \left(\frac{r_0}{r} \right)$ (17) $E = \frac{\sigma}{2c_0} \mathbf{u}_n$ (18) $V(x) = \frac{\sigma}{2c_0} (x - x_0)$ (19) Anello con carica uniforme (sull'asse) (19) Anello con carica uniforme (sull'asse) (20) $E(x) = \frac{\sigma}{2c_0} (x^2 + R^2)^{3/2} \mathbf{u}_r$ (21) $V(x) = \frac{\sigma}{2c_0} (x^2 + R^2)^{3/2} \mathbf{u}_r$ (22) $E(x) = \frac{\sigma}{2c_0} (x^2 + R^2)^{3/2} \mathbf{u}_r$ (23) $V(x) = \frac{\sigma}{2c_0} (x^2 + R^2 - x)$ (24) $E(x) = \frac{\sigma}{2c_0} (x^2 + R^2 - x)$ (25) $V(x) = \frac{\sigma}{2c_0} (x^2 + R^2 - x)$ (47) $\frac{\sigma}{2c_0} (x^2 + R^2 - x)$ (48) $\frac{\sigma}{2c_0} (x^2 + R^2 - x)$ (49) $\frac{\sigma}{2c_0} (x^2 + R^2 - x)$ (69) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (70) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (71) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (72) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (73) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (74) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (75) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (76) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (77) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (78) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (79) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (70) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (71) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (72) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (73) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (74) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (75) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (76) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (77) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (78) $\frac{\sigma}{\sigma} (x^2 + R^2 - x)$ (79) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (70) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (71) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (72) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (73) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (74) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (75) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (76) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (77) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (88) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (99) $\frac{\sigma}{\sigma} (x^2 - R^2 - x)$ (19) $\frac{\sigma}{$		· B di corpi notevoli (ATTENZIONE:	· Fem indotta
(13) $ \left\{ \frac{4\pi c_0 \sigma}{4\pi c_0 \sigma} \text{se } r \ge R \right\} $ $ C_{qq} = \sum_{k=1}^{N} C_i $ (14) Filo infinito con carica uniforme λ $ C_{dici} = k_c C_0 $ (15) $ E(r) = \frac{\lambda}{2\pi c_0 r} \mathbf{u}_r $ (16) $ V(r) = \frac{\lambda}{2\pi c_0} \ln \frac{r_0}{r} $ (17) $ E = \frac{\sigma}{2c_0} \mathbf{u}_r $ (18) $ V(x) = \frac{\sigma}{2c_0} (x - x_0) $ (19) $ Anello \text{ con carica uniforme} $ (20) $ E(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} \beta^2 \mathbf{u}_r $ (21) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} \beta^2 \mathbf{u}_r $ (22) $ D_{\text{isco carico uniformemente}} $ (23) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} + R^2 \beta^2 \mathbf{u}_r $ (24) $ E(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (25) $ C_{\text{carico culiformemente}} (x >> R) $ (48) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (49) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (40) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (41) $ C_{\text{condensatore pieno}} $ (65) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (76) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (77) $ C_{\text{condensatore pieno}} $ (78) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (79) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (70) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (71) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (72) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (73) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (74) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (75) $ C_{\text{condensatore pieno}} $ (76) $ C_{\text{condensatore pieno}} $ (77) $ C_{\text{condensatore pieno}} $ (78) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (79) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (70) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (71) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (72) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (73) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (74) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (75) $ C_{\text{condensatore pieno}} $ (76) $ C_{\text{condensatore pieno}} $ (77) $ C_{\text{condensatore pieno}} $ (88) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (89) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (90) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (19) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (19) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (19) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} - x $ (10) $ V(x) = \frac{\sigma}{2c_0} \sqrt{x^2 + R^2} -$	DIELETTRICI Campo elettrico in un dielettrico	viene indicata la direzione, il verso dipen- de dalla corrente I) Asse di una spira	$\varepsilon = -\frac{\mathrm{d}\Phi(\mathbf{B})}{\mathrm{d}t} = -L\frac{\mathrm{d}I}{\mathrm{d}t} \tag{129}$
(14) Fig. Induction Correction uniforms A Con dielettrico (15) $\mathbf{E}(r) = \frac{\lambda}{2\pi \varepsilon_0} \mathbf{u}_r$ (40) $C_{diel} = k_e C_0$ (61) Piano Σ infinito con carica uniforme (17) $\mathbf{E} = \frac{\sigma}{2\varepsilon_0} \mathbf{u}_n$ (41) $U = \frac{Q^2}{2C} = \frac{1}{2}CV = \frac{1}{2}QV$ (62) (18) $V(x) = \frac{\sigma}{2\varepsilon_0}(x - x_0)$ (43) $RQ'(t) + \frac{Q(t)}{C} = V$ (63) (20) $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2)^{3/2} \mathbf{u}_x$ (44) $Q(t) = Q_0(1 - e^{-\frac{\pi}{R}})$ (64) $C_0(t) = Q_0(1 - e^{-\frac{\pi}{R}})$ (65) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2)^{3/2} \mathbf{u}_x$ (46) $C_0(t) = Q_0(1 - e^{-\frac{\pi}{R}})$ (65) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (77) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (88) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (90) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (91) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (92) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (93) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (94) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (95) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (96) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (97) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (98) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (99) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (10) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (11) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (12) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (13) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(x^2 + R^2 - x)$ (14) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (15) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (17) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (18) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (19) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (19) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (10) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (11) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (12) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (13) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (14) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (15) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (15) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (16) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (17) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (18) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (18) $C_0(t) = \frac{\sigma}{2\varepsilon_0}(t)$ (19) $C_0(t) = \frac$	$\mathbf{E}_k = \frac{\mathbf{E}_0}{k} \tag{81}$	$\mathbf{B}(z) = \frac{\mu_0 I r^2}{z \sqrt{z_0 - z_0 \cos u_z}} \mathbf{u}_z \tag{106}$	· Corrente indotta
(15) $LV^{-} = \frac{\lambda}{2\pi\varepsilon_0 r} \ln \left(\frac{r_0}{r} \right)$ (41) Energia interna del condensatore piano $V(r) = \frac{\lambda}{2\pi\varepsilon_0} \ln \left(\frac{r_0}{r} \right)$ (41) Energia interna del condensatore piano $V(r) = \frac{\lambda}{2\pi\varepsilon_0} \ln \left(\frac{r_0}{r} \right)$ (42) Differenziale circuito RC (62) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{r_0}{r}$ (43) $RQ'(t) + \frac{Q(t)}{C} = V$ (63) (19) Anello con carica uniforme (sull'asse) Carica (20) $L^{-} = \frac{\lambda}{2\varepsilon_0} (x^2 + R^2)^{3/2} u_x$ (44) $L^{-} = \frac{Q^2}{2\varepsilon_0} \ln \frac{r_0}{r}$ (64) $L^{-} = \frac{\sigma}{2\varepsilon_0} \left(\frac{1 - \frac{1}{4\varepsilon_0}}{\sqrt{1 + \frac{R^2}{r^2}}} \right) u_x$ (45) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{r_0}{r}$ (65) $L^{-} = \frac{\sigma}{2\varepsilon_0} \left(\frac{1 - \frac{1}{4\varepsilon_0}}{\sqrt{1 + \frac{R^2}{r^2}}} \right) u_x$ (47) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{r_0}{r}$ (66) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{r_0}{r}$ (47) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (48) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (57) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (49) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (67) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (48) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (68) Guidensatore piano $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (49) $L^{-} = \frac{\sigma}{2\varepsilon_0} \ln \frac{R}{r}$ (68) Guidensatore uniformemente carico	 Vettore P polarizzazione		$I = \frac{\varepsilon_i}{R} = -\frac{\mathrm{d}\Phi(\mathbf{B})}{R\mathrm{d}t} \tag{130}$
(16) $V(r) = \frac{1}{2\pi\varepsilon} \ln\left(\frac{r_0}{r}\right)$ (41) $\frac{1}{2\pi\varepsilon} \ln\left(\frac{r_0}{r}\right)$ (42) Piano Σ infinito con carica uniforme (42) Differenziale circuito RC (63) (17) $V(x) = \frac{\sigma}{2\varepsilon_0} (x - x_0)$ (43) $RQ'(t) + \frac{Q'(t)}{C} = V$ (63) (63) (19) Anello con carica uniforme (sull'asse) Carica $V(x) = \frac{\sigma}{2\varepsilon_0} (x^2 + R^2)^{3/2} \mathbf{u}_{\varepsilon}$ (45) $Q(t) = Q_0(1 - e^{-\frac{t}{R^2}})$ (64) $Q(t) = Q_0(1 - e^{-\frac{t}{R^2}})$ (65) $Q(t) = \frac{\sigma}{2\varepsilon_0} (x^2 + R^2)^{3/2} \mathbf{u}_{\varepsilon}$ (45) $Q(t) = Q_0(1 - e^{-\frac{t}{R^2}})$ (65) $Q(t) = \frac{\sigma}{2\varepsilon_0} (1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}}) \mathbf{u}_{\varepsilon}$ (46) $Q(t) = Q_0(1 - e^{-\frac{t}{R^2}})$ (67) $Q(t) = \frac{\sigma}{2\varepsilon_0} (1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}}) \mathbf{u}_{\varepsilon}$ (46) $Q(t) = Q_0(1 - e^{-\frac{t}{R^2}})$ (67) $Q(t) = \frac{\sigma}{2\varepsilon_0} (1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}}) \mathbf{u}_{\varepsilon}$ (46) $Q(t) = \frac{Q^2}{2\varepsilon_0} \frac{1}{2\varepsilon_0} \mathbf{u}_{\varepsilon}$ (67) $Q(t) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{2\varepsilon_0} \mathbf{u}_{\varepsilon}$ (48) $Q(t) = \frac{Q^2}{2\varepsilon_0} \frac{Q^2}{2\varepsilon_0} \mathbf{u}_{\varepsilon}$ (67) $Q(t) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{2\varepsilon_0} \mathbf{u}_{\varepsilon}$ (68) Guscio cilindrico uniformemente carico	$\mathbf{P} = \frac{dp}{d\tau} \tag{82}$	$\mathbf{B}(r) = \frac{\mu_0 I}{2\pi r} \mathbf{u}_{\phi} \tag{107}$	· Energia dell'induttanza Mutua (solo una volta osmi connia)·
This is the prime of the prime	w · Dielettrici lineari	Asse filo lungo 2a	Mutua (solo una volta ogin coppia).
(17) $\mathbf{E} = \frac{1}{2\varepsilon_0} \mathbf{u}_n$ (42) Differentiale circuito \mathbf{KC} (18) $V(x) = \frac{\sigma}{2\varepsilon_0} (x - x_0)$ (43) $RQ'(t) + \frac{Q(t)}{C} = V$ (63) (19) Anello con carica uniforme (sull'asse) Carica $V(x) = \frac{\sigma}{2\varepsilon_0 (x^2 + R^2)^{3/2}} \mathbf{u}_x$ (44) $Q(t) = Q_0(1 - e^{-\frac{t}{16}})$ (64) (64) Scarica $V(x) = \frac{\lambda R}{2\varepsilon_0 \sqrt{x^2 + R^2}}$ (45) $Q(t) = Q_0e^{-\frac{t}{16}}$ (65) $Q(t) = Q_0e^{-\frac{t}{16}}$ (65) $Q(t) = \frac{\sigma}{2\varepsilon_0} \sqrt{1 + \frac{R^2}{x^2}}$ (7) $Q(t) = Q_0e^{-\frac{t}{16}}$ (65) $Q(t) = Q_0e^{-\frac{t}{16}}$ (66) $Q(t) = \frac{\sigma}{2\varepsilon_0} \sqrt{1 + \frac{R^2}{x^2}}$ (7) $Q(t) = \frac{\sigma}{2\varepsilon_0} \sqrt{1 + \frac{R^2}{x^2}}$ (8) $Q(t) = \frac{\sigma}{2\varepsilon_0} \sqrt{1 + \frac{R^2}{x^2}}$ (8) Guscio cilindrico uniformemente carico	$\mathbf{P} = \varepsilon_0 \chi_E \mathbf{E}_k = \varepsilon_0 (k - 1) \mathbf{E}_k \tag{83}$	$\mathbf{B}(r) = \frac{\mu_0 I a}{2\pi r \sqrt{r^2 + a^2}} \mathbf{u}_{\phi} $ (108)	$U_{1,2} = \frac{1}{2}MI_1I_2 + \frac{1}{2}MI_2I_1 \tag{131}$
(18) $V(x) = \frac{\sigma}{2\varepsilon_0}(x - x_0)$ (43) $RQ'(t) + \frac{e_{C'}}{C} = V$ (63) (19) Anello con carica uniforme (sull'asse) (20) $\mathbf{E}(x) = \frac{\lambda Rx}{2\varepsilon_0(x^2 + R^2)^{3/2}} \mathbf{u}_x$ (44) $Q(t) = Q_0(1 - e^{-\frac{it}{R^2}})$ (64) (21) $V(x) = \frac{\lambda Rx}{2\varepsilon_0\sqrt{x^2 + R^2}}$ (45) $Q(t) = Q_0e^{-\frac{it}{R^2}}$ (65) (22) Disco carico uniformemente $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \left(1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}}\right) \mathbf{u}_x$ (46) resistività ρ (23) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x\right)$ (47) $RC = \varepsilon_0 \rho$ (66) (74) $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{x^2} \mathbf{u}_x$ (48) $\mathbf{E} = \frac{Q^2}{2\varepsilon_0} \frac{1}{2\varepsilon_0} \frac{1}{2\varepsilon_0}$ (67) (75) Guscio cilindrico uniformemente carico	· Dens. superficiale di q polarizzata	Solenoide ideale	
(20) Anello con carica uniforme (sull'asse) Carica (21) $E(x) = \frac{\lambda Rx}{2\varepsilon_0(x^2 + R^2)^{3/2}} \mathbf{u}_x$ (44) $Scarica$ $V(x) = \frac{\lambda R}{2\varepsilon_0(\sqrt{x^2 + R^2})^{3/2}} \mathbf{u}_x$ (45) $Q(t) = Q_0(1 - e^{-\frac{t}{R^2}})$ (65) (22) Disco carico uniformemente $E(x) = \frac{\sigma}{2\varepsilon_0} \left(1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}} \right) \mathbf{u}_x$ (46) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x \right)$ (47) $RC = \varepsilon_0 \rho$ (66) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x \right)$ (47) $RC = \varepsilon_0 \rho$ (66) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x \right)$ (47) $RC = \varepsilon_0 \rho$ (67) $E(x) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{x^2} \mathbf{u}_x$ (48) $R = \frac{Q\sigma}{2\varepsilon_0} \left(\frac{Q\sigma}{2\varepsilon_0} \right)$ (67) $Condensatore piano$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (48) $R = \frac{Q\sigma}{2\varepsilon_0} \left(\frac{Q\sigma}{2\varepsilon_0} \right)$ (67) $Condensatore piano$ (68)	$\sigma_p = \mathbf{P} \cdot \mathbf{u}_n = \frac{k-1}{r} \sigma_l \tag{84}$	$\mathbf{B} = \mu_0 \frac{N}{L} I \tag{109}$	$U_L = \frac{-}{2}LI^2 \tag{132}$
(20) $\mathbf{E}(x) = \frac{\lambda Rx}{2\varepsilon_0(x^2 + R^2)^{3/2}} \mathbf{u}_x \qquad (44) \qquad Q(t) = Q_0(1 - e^{-Rc}) \qquad (64)$ (21) $V(x) = \frac{\lambda R}{2\varepsilon_0\sqrt{x^2 + R^2}} \qquad (45) \qquad Q(t) = Q_0e^{-\frac{t}{u^2}} \qquad (65)$ (22) Disco carico uniformemente $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \left(1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}}\right) \mathbf{u}_x \qquad (46) \qquad \text{Condensatore pieno}$ (23) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x\right) \qquad (47) \qquad \mathbf{Forza fra le armature}$ (24) $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{x^2} \mathbf{u}_x \qquad (48) \qquad F = \frac{Q^2}{2} \partial_x \left(\frac{1}{C}\right)$ (66) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (48) \qquad Condensatore piano$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49) \qquad F = \frac{Q^2}{2\varepsilon_0} \frac{Q^2}{2\varepsilon_0} \qquad (68)$ (25) Guscio cilindrico uniformemente carico	di a polarizz		In un circuito (conta una volta ogni induttanza ed una ogni coppia)
(22) $V(x) = \frac{\lambda R}{2\varepsilon_0\sqrt{x^2 + R^2}}$ (45) $Q(t) = Q_0e^{-\frac{t}{T^2}}$ (65) . Condensatore pieno Condensatore riempito di materiale di resistività ρ (73) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x\right)$ (47) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x\right)$ (47) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x\right)$ (47) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x\right)$ (48) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x\right)$ (67) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (48) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (67) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (68) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (67) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (68) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (68) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (68)	$\rho_p = -\nabla \cdot \mathbf{P} \tag{85}$		$\frac{1}{N} \frac{N}{N} \left(\frac{1}{N} \frac{N}{N} \right) \frac{N}{N} = \frac{1}{N} \frac{N}{N} $
(22) Disco carico uniformemente $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \left(1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}} \right) \mathbf{u}_x \qquad (46)$ (23) $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x \right) \qquad (47)$ $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x \right) \qquad (47)$ $\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{x^2} \mathbf{u}_x \qquad (48)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (68)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (68)$	nto elettrico	Piano infinito su xy, con K \mathbf{u}_x densità lineare di corrente	$U = \frac{1}{2} \sum_{i=1} \left(L_i I_i^{-1} + \sum_{j=1} M_{i,j} I_i I_j \right) i \neq j$ (133)
(23) $E(x) = \frac{\sigma}{2\varepsilon_0} \left(1 - \frac{1}{\sqrt{1 + \frac{R^2}{x^2}}} \right) \mathbf{u}_x \qquad (46) \qquad \text{resistività } \rho$ $V(x) = \frac{\sigma}{2\varepsilon_0} \left(\sqrt{x^2 + R^2} - x \right) \qquad (47) \qquad \mathbf{R}C = \varepsilon_0 \rho$ Disco carico uniformemente $(x >> R)$ $E(x) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{x^2} \mathbf{u}_x \qquad (48)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49)$ $Condensatore piano$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49)$	$\mathbf{D} = \varepsilon_0 \mathbf{E}_k + \mathbf{P} = \varepsilon_0 k \mathbf{E}_k = \varepsilon_0 \mathbf{E}_0 $ (86)	$\mathbf{B} = \frac{\mu_0 \mathbf{K}}{2} \mathbf{u}_y \tag{111}$	· Legge di Felici
(23) $V(x) = \frac{\sigma}{2\varepsilon_0} (\sqrt{x^2 + R^2} - x) $ (47) $Forza \text{ fra le armature}$ Disco carico uniformemente $(x >> R)$ $E(x) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{x^2} u_x$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (48) $F = \frac{Q^2}{2\varepsilon_0} \frac{C}{C}$ $Condensatore piano$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (67) $\frac{\sigma}{2\varepsilon_0} \frac{R^2}{z}$ (67) $\frac{\sigma}{2\varepsilon_0} \frac{R^2}{z}$ (68) $\frac{\sigma}{2\varepsilon_0} \frac{R^2}{z}$	■ CORRENTI	· Effetto Hall b spessore sonda, b // B, b ⊥ I, n car/vol	$O(t) = \frac{\Phi(0) - \Phi(t)}{(134)}$
$V(x) = \frac{1}{2^{c_0}} (\sqrt{x^2 + R^2 - x}) \qquad (47) \qquad . $ Forza fra le armature $Disco carico uniformemente (x >> R) E(x) = \frac{\sigma}{2^{c_0}} \frac{R^2}{x^2} \mathbf{u}_x \qquad (48) \qquad F = \frac{Q^2}{2} \partial_x \left(\frac{1}{C}\right) \qquad (67) \qquad . V(x) = \frac{\sigma}{4^{c_0}} \frac{R^2}{x} \qquad (49) \qquad F = \frac{Q\sigma}{2^{c_0}} = \frac{Q^2}{2^{c_0} \Sigma} \qquad (68) \qquad . (25) \qquad Guscio cilindrico uniformemente carico \qquad .$	· Lavoro del generatore	$V_{PI} = \frac{IB}{I} \tag{112}$	R
(24) Disco carico uniformemente $(x >> R)$ $F = \frac{Q^2}{2} \partial_x \left(\frac{1}{C}\right)$ (67) $E(x) = \frac{\sigma}{2\varepsilon_0} \frac{R^2}{x^2} \mathbf{u}_x$ (48) $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x}$ (49) $F = \frac{Q\sigma}{2\varepsilon_0} = \frac{Q^2}{2\varepsilon_0\Sigma}$ (58)	$W_{gen} = \int_{t_1}^{t_2} V dq(t) = 2U_E$ (87)		· Circuito RL in DC L si oppone alle variazioni di I smorzan-
$\mathbf{E}(x) = \frac{\sigma}{2\varepsilon_0} \frac{\mathbf{R}}{x^2} \mathbf{u}_x \qquad (48) \qquad \frac{2}{\sqrt{C}} (C)$ $V(x) = \frac{\sigma}{4\varepsilon_0} \frac{R^2}{x} \qquad (49) \qquad F = \frac{Q\sigma}{2\varepsilon_0} = \frac{Q^2}{2\varepsilon_0 \Sigma} \qquad (68)$ (25) Guscio cilindrico uniformemente carico	· Densità di corrente	· Forza di Ampere Corr. equiversa = for. attrattiva	dole Appena inizia a circolare corrente
$V(x) = \frac{\sigma}{4\epsilon_0} \frac{R^2}{x} $ (49) $F = \frac{Q\sigma}{2\epsilon_0} = \frac{Q^2}{2\epsilon_0 \Sigma} $ (68) (25) Guscio cilindrico uniformemente carico	$\mathbf{J} = nq\mathbf{v} = \frac{Nq\mathbf{v}}{\tau} \tag{88}$	$F = \frac{\mu_0}{2\pi} \frac{I_1 I_2 L}{d} \tag{113}$	$I(t) = \frac{V_0}{B} (1 - e^{-\frac{R}{L}t}) $ (135)
(25) Guscio cilindrico uniformemente carico $2\epsilon_0 - 2\epsilon_0 \Sigma$	· Intensità di corrente	vettore A	Quando il circuito viene aperto
	$I = \frac{\mathrm{d}q(t)}{\mathrm{d}t} = \int_{\Sigma} \mathbf{J} \cdot \mathrm{d}\Sigma \tag{89}$		$I(t) = I_0 e^{-\frac{R}{L}t} \tag{136}$
mpo elettrico $\mathbf{E}(r) = \left\{ \begin{array}{ccc} 0 & \text{se r} < \mathbf{R} & \blacksquare & \mathbf{DIPOLO \ ELETTRICO} \\ Q & & & & & & & & & & & & & & & & & &$	Leggi di Ohm	$\mathbf{A}(\mathbf{r}_1) = \frac{\mu_0}{4\pi^0} \int \frac{\mathbf{J}^{1/2}\mathbf{Z}}{r_{2,1}} d\tau_2 $ (115)	\cdot Circuiti con barra mobile (b lunghezza barra)
$\frac{1}{2\pi\varepsilon_0 hr} \text{se } r \ge R \qquad \text{Momento di dipolo}$ $\frac{1}{r} \qquad (26) \qquad \qquad r = m \qquad (69)$	$V = RI \tag{90}$	Invarianza di Gauge $\mathbf{A'} = \mathbf{A} + \nabla \Psi \tag{116}$	F.e.m. indotta
ziale due cariche $V(r) = \begin{cases} 0 & \text{se r} < \mathbb{R} \\ \frac{r}{r} & \text{se r} \ge \mathbb{R} \end{cases}$ (51) Potenziale del dipolo	$\frac{\rho}{\Sigma} dl$	Coulomb	$\varepsilon(t) = -Bbv(t)$ (137) Corrente in un circuito chiuso
$(27) \frac{(2\pi\varepsilon_0 h^{-1}R)^{-1}}{(2\pi\varepsilon_0 h^{-1}R)^{-1}} \frac{V(\mu)}{(2\pi\varepsilon_0 h^{-1}R)^{-1}} \frac{da\cos\theta}{(2\pi\varepsilon_0 h^{-1}R)^{-1}} \frac{(7\pi)}{(7\pi)}$	$\mathbf{E} = \rho \mathbf{J}$ (92)	$\nabla \cdot \mathbf{A} = 0 \tag{117}$	COLICERO III del CHICAGO

as conduttore chaico		. Moto ciclotrone	Tarras formits non minarara la hama	. Done IINEARE di comonte sul	-
	3	Raggio	Layoto 10111100 per muovere la balta $(Bbi(t))^2$	SUPERFICIE	п П
	(34)	$R = \frac{mv}{aB} \tag{119}$	$W = \frac{\langle Eoc(V) \rangle}{R} \tag{139}$	$\mathbf{K_m} = \mathbf{M} \times \mathbf{u}_r \tag{15}$	(159)
	99)	Periodo	Forza magnetica sulla barra	\mathbf{M} = $M\mathbf{u}_z$ $\mathbf{K_m}$ = $K_m\mathbf{u}_\phi$	
	G	$T = \frac{2\pi m}{qB} \tag{120}$	$F = m\frac{\mathrm{d}v}{\mathrm{d}t} = -\frac{(Bb)^2 v(t)}{R} \tag{140}$	· Dens. SUPERFICIALE corrente	nte
$\sum_{i=1}^{L} h_i \tag{9}$	(90)	Angolo deflessione elica (v 2 dimensioni)	ATTENZIONE: per tenere v costante è necessaria una F esterna; altrimenti		(160)
)-1	ĵ	$\sin(\theta) = \frac{qBR}{mv} \tag{121}$	essa è opposta a v e il moto è smorzato esponenzialmente	m,c	61)
$\left(\frac{1}{N_i} \frac{1}{N_i}\right)$ (9)	(26)	Passo elica	. Disco di Barlow	COL	nte
ratore reale		$d = \frac{2\pi R}{4\pi \pi (0)} \tag{122}$	Campo elettrico	LIBERA	
	(86)		$\mathbf{E} = \frac{\mathbf{F}}{O} = \mathbf{v} \times \mathbf{B} = \omega x B \mathbf{u}_x \tag{141}$	$\mathbf{j}_{1} \neq \mu_{0}\mathbf{j}$ (162)	62)
di Kirchhoff dei nodi	-	■ INDUZIONE	پ F.e.m. indotta		(163)
	(00)	i mutua induzione	$\varepsilon = \frac{1}{\epsilon} \cdot Br^2 \tag{149}$	$ \oint \mathbf{H} \cdot d\mathbf{l} = I_{\ell,c} \tag{164} $	64)
	(88)	$\Phi_{1,2} = MI_1 \qquad \Phi_{2,1} = MI_2 $ (123)	; ;	· Energia di B	
maglie		ato da 1 attravers	ı un cırcuito chiuso	$U_B = \frac{1}{2\mu_0} \int_{\mathbb{R}^3} \mathbf{B}^2 d\tau \tag{165}$	(29)
k = 0 (10	(100)	$\Phi_{1,2} = NB_1\Sigma_2 \tag{124}$		$U_{R} = \frac{1}{2} \int \mathbf{i} \cdot \mathbf{A} d\tau \tag{166}$	(99)
NETOSTATICA	1	· Induttanza Φ autoflusso	Se nuon ci sono forze esterne il moto è smorzato Memorite tenente fermente	mi	
di Lorentz × B (10	(101)	$\Phi(\mathbf{B}) = IL \tag{125}$	$\mathbf{M} = -\frac{\omega B r^4}{1 - \omega r^2} \mathbf{u}_z \tag{144}$	$U_B = \frac{1}{2} \sum_{i=1}^{N} I_i \Phi_i \tag{167}$	67)
a legge di Laplace		Solenoide ideale	4R angolare		
	(102)	$L = \mu_0 \frac{N}{L} \Sigma = \mu_0 n^2 L \Sigma \tag{126}$	$\omega(t) = \omega_0 e^{-\frac{t}{\tau}}$ $\tau = \frac{2mR}{p_22}$ (145)	· Impedenza	
$\frac{\mu_0}{4\pi} \int \frac{\mathbf{J} \times \mathbf{u}_r}{r^2} d\tau \tag{10}$	(103)			La somma delle impedenze in serie parallelo segue le regole dei resistori	0
_	(104)	$L = \frac{r}{2\pi} - \ln\left(\frac{R}{R}\right) \tag{127}$	■ DIPOLO MAGNETICO · Momento di dipolo	$Z = R + i \left(\omega L + \frac{1}{\omega C} \right) \tag{168}$	(89)
ر ۴۵۰۶ / ا da legge di Laplace		· Fem autoindotta	$d\mathbf{m} = I d\Sigma \mathbf{u}_n \tag{146}$		
	(105)	$\Phi = -L\frac{dI}{dt} \tag{128}$	del dipolo	$ Z = \sqrt{R^2 + \left(\omega L + \frac{1}{\omega C}\right)^2} \tag{169}$	(69)
corpi notevoli (ATTENZION	ÄË	· Fem indotta	$\mathbf{A} = \frac{\mu_0}{4\pi r^2} \left(\mathbf{m} \times \mathbf{u}_r \right) \tag{147}$	· RLC serie in DC smorzato Equazione differenziale	
la corrente I)	-112	$\varepsilon = -\frac{d\Psi(\mathbf{B})}{dt} = -L\frac{dI}{dt} \tag{129}$	· Campo magnetico B generato		(170)
i una spira $\mu_0 Ir^2$	6	· Corrente indotta	$\mathbf{B}(\mathbf{r}) = \frac{\mu_0}{2} [3\mathbf{u}_r(\mathbf{m} \cdot \mathbf{u}_r) - \mathbf{m}] \tag{148}$	= <u>R</u>	
$\frac{2}{3}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{2}$	(106)	$I = \frac{\varepsilon_i}{\Xi} = -\frac{\mathrm{d}\Phi(\mathbf{B})}{\Xi} \tag{130}$	Ī	$\omega_0 = \frac{\sqrt{LC}}{\sqrt{LC}}$ $\frac{1}{2L}$	
			torcente		
	(107)	· Energia den maattanza Mutua (solo una volta ogni coppia):	$\mathbf{M} = \mathbf{m} \times \mathbf{B} \tag{149}$		(171)
	6	$U_{1,2} = \frac{1}{2}MI_1I_2 + \frac{1}{2}MI_2I_1 \tag{131}$	e sul dipolo	0.5	
$= \frac{2\pi r \sqrt{r^2 + a^2}}{2\pi r \sqrt{r^2 + a^2}} \mathbf{u}_{\phi} \tag{10}$	(108)	Interna	$\mathbf{F} = \nabla \left(\mathbf{m} \cdot \mathbf{B} \right) \tag{150}$	$I(t) = e^{-\gamma t} (Ae^{\omega} + Be^{-\omega}) \tag{172}$	72)
		$U_L = \frac{1}{2}LI^2 \tag{132}$	olodip le	Smorz. CRITICO $\gamma^2 = \omega_0^2$	
$\frac{1}{L}I$ (16)	(109)	iito (nonta una volta	$U = -\mathbf{m} \cdot \mathbf{B} \tag{151}$	$I(t) = e^{-\gamma t} (A + Bt) $ (17)	(173)
	6	in un circuito (conta una voita ogin induttanza ed una ogni coppia)	· Energia pot. tra due dipoli	A, B e φ si ricavano impostando le	le
	(011)	$H = \frac{1}{2} \sum_{i} (I_{i} I_{i}^{2} + \sum_{i} M_{i} \cdot I_{i}^{2})$ $i \neq i$	$U = -\mathbf{m_1} \cdot \mathbf{B_2} = -\mathbf{m_2} \cdot \mathbf{B_1} $ (152)	Condizioni iniziani . BLC serie in AC forzato	
infinito su xy, con \mathbf{k} \mathbf{u}_x densità di corrente	sıta		${\bf B}$ è il campo magnetico generato dall'altro dipolo		
	(111)	· Legge di Felici	\cdot Forza tra dipoli		(174)
o Hall sore sonda. b // B. b \perp I. n car/vol	,vol	$O(t) = \frac{\Phi(0) - \Phi(t)}{O(t)} $	$F(\mathbf{r}) = \frac{\sigma_T \sigma_U}{4\pi r^4} \left[(\mathbf{m}_1 \cdot \mathbf{u}_r) \mathbf{m}_2 + (\mathbf{m}_2 \cdot \mathbf{u}_r) \mathbf{m}_1 + \right]$	Equazione differenziale	
	(112)		$+(\mathbf{m_1} \cdot \mathbf{m_2})\mathbf{u_r} - 5(\mathbf{m_1} \cdot \mathbf{u_r})(\mathbf{m_2} \cdot \mathbf{u_r})\mathbf{u_r}]$ (15.9)	$I''(t) + 2\gamma I'(t) + \omega_0 I(t) = -\frac{3\Delta \varepsilon_0}{L} \sin(\Omega t + \Phi)$	Ф
	(71	· Circuito RL in DC L si oppone alle variazioni di I smorzan-—	(153)	(175)	75)
di Ampere equiversa = for. attrattiva		dole Appena inizia a circolare corrente	■ MAGNETISMO		í
	(113)	$I(t) = \frac{V_0}{1} (1 - e^{-\frac{R}{L}t})$ (135)	stico nella materi	<i>t</i>)	(176)
ettore A		riene anerto		Corrence massina ε_0 ε_0 ε_0	1
	(114)	$I(t) = I_0 e^{-\frac{R}{L}t} \tag{136}$	$\mathbf{D} = k_m \mathbf{D}_0 = (1 + \chi_m) \mathbf{D}_0$ (155)	$L_0(M) = Z = \sqrt{R^2 + (\omega L + \frac{1}{\omega C})^2}$ (1)	<u> </u>
$= \frac{\mu_0}{4\pi} \int \frac{\mathbf{j(r_2)}}{\frac{\mathbf{j(r_2)}}{m_2}} d\tau_2 $ (11)	(115)	barra mobile (b lur		Sfasamento	
anza di Gauge		za barra) F.e.m. indotta	$\mathbf{M} = n\mathbf{m} = \frac{1}{4\pi} $ (150)	$\tan \Phi(\Omega) = \frac{L\Omega - \frac{1}{\Omega C}}{R} $ (178)	78)
	(116)	$\varepsilon(t) = -Bbv(t) \tag{137}$	$\mathbf{M} = \frac{\chi_m \mathbf{B}}{(\chi_m + 1)\mu_0} \tag{157}$	NOTA: Lo sfasamento di I rispetto a ε è	e, e,
at Coulomb	(117)	Corrente in un circuito chiuso	· Campo magnetizzante H	Risonanza	
$-\mu_0$ j (11)	(118)	$I(t) = \frac{Bbv(t)}{R} \tag{138}$	$\mathbf{H} = \frac{\mathbf{B}}{\mu_0} - \mathbf{M} = \frac{\mathbf{B}}{\mu} = \frac{\mathbf{B}}{k_m \mu_0} = \frac{\mathbf{M}}{\chi_m} $ (158)	$Im(Z) = 0 \rightarrow \omega_0 = \frac{1}{\sqrt{LC}}$ (17)	(179)

·				•																																						
	(238)	,	(239)		(240)	(241)	a Police	(242)		(243)			(244)		(245)	(976)	(017)	(247)		(248)	(249)		ınterte- dei due	c	z (-	(250)		(251)		(252)		(253)		(254)	(271)	ĺ	(272)	(273)		(274)	x	(275)
$\begin{aligned} & \text{Massimi secondari} \\ & m \in \mathbb{Z} - \{kN, kN - 1 \text{ con } k \in \mathbb{Z}\} \end{aligned}$	$\delta = \frac{2m+1}{\cos x} \pi \to \sin \theta = \frac{2m+1}{\cos x} \frac{\lambda}{3}$	2N $2N$ d	$I_{SEC} = \frac{I_0}{\left(\sin\frac{\pi d\sin\theta}{\lambda}\right)^2}$	Minimi $m \in \mathbb{Z} - \{kN\}$	$\delta = \frac{2m}{N}\pi \to \sin\theta = \frac{m\lambda}{Nd}$	$I_{MIN} = 0$ Senarazione anerolare (distanza a		$\Delta heta pprox rac{1}{N} rac{\lambda}{d\cos heta}$	Potere risolutore	$\frac{\delta\lambda}{\lambda} = \frac{1}{Nn}$	· Diffrazione	Intensity $\left(\sin\left(\frac{\pi a \sin \theta}{\sqrt{1 - \lambda^2}}\right)\right)^2$	$I(\theta) = I_0 \left(\frac{\lambda}{\pi a \sin \theta} \right)$	Massimo pincipale in $\theta=0$	$I_{MAX} = I_0$ Massimi socondari $m \in \mathbb{Z} = J = 1 \mid 0 \mid$	$\sin \theta - \frac{2m+1\lambda}{3}$	$\frac{1}{2}$	$I_{SEC} = \frac{I_0}{\left(\frac{\pi(2m+1)}{2m+1}\right)^2}$	Minimi $m \in \mathbb{Z} - \{0\}$	$\sin\theta = \frac{m\lambda}{s}$	$I_{MIN} = 0$	· Reticolo di diffrazione	Sovrapposizione di diffrazione e interfe- renza, l'intensità è il prodotto dei due effetti		$I(\theta) = I_0 \left(\frac{\sin(\frac{\pi a \sin \theta}{\lambda})}{\frac{\pi a \sin \theta}{\lambda}} \right) \frac{\sin(\frac{N\pi d \sin \theta}{\lambda})}{\sin(\frac{\pi d \sin \theta}{\lambda})} \right)^2$: :	Dispersione	$D = \frac{\mathrm{d}\theta}{\mathrm{d}\lambda} = \frac{m}{d\cos\theta_m}$	Fattore molt. di inclinazione	$f(\theta) = \frac{1 + \cos \theta}{2}$	· Filtro polarizzatore Luce NON polarizzata	$I = \frac{I_0}{2}$	Luce polarizzata (Legge di Malus)	$I = I_0 \cos^2(\theta)$	$\int \frac{1}{(x^2 + r^2)^{3/2}} \mathrm{d}x = \frac{x}{r^2 \sqrt{r^2 + x^2}}$	T. J.	$\int \frac{x}{\sqrt{x^2 + r^2}} dx = \sqrt{r^2 + x^2}$	$\int \frac{x}{(x^2 + r^2)^{3/2}} \mathrm{d}x = -\frac{1}{\sqrt{r^2 + x^2}}$	$(1+\sin x)$	$\int \frac{1}{\cos x} dx = \log \left(\frac{1 + \sin x}{\cos x} \right)$	$\int_{-\infty}^{\infty} \frac{3a\cos ax}{a} \cos 3ax$	$\int \sin \frac{axux}{a} = -\frac{1}{4a} \qquad 12$
	(220)		(221)		(222)	(223)		(224)		(225)	(226)		(227)			(228)		(229)			(230)	ttile	(231)		(232)		(233)		(234)		(235)		(236)	(237)		(267)	(:)1	(268)			(269)	(270)
· Interferenza generica Onda risultante	$f(\mathbf{r},t) = Ae^{i(kr_1-\omega t + \alpha)}$	Ampiezza	$A = \sqrt{A_1^2 + A_2^2 + 2A_1 A_2 \cos \delta}$	Diff. cammino ottico	$\delta = \alpha_2 - \alpha_1 = (\Phi_2 - \Phi_1 + k(r_2 - r_1)$ Intensità	$I = I_1 + I_2 + 2\sqrt{I_1 I_2} \cos \delta$	Fase risultante α	$\tan \alpha = \frac{A_1 \sin \alpha_1 + A_2 \sin \alpha_2}{A_1 \cos \alpha_1 + A_2 \cos \alpha_2}$	Massimi	$\delta = 2n\pi$ Winimi	$\delta = (2n+1)\pi$	· Condizione di Fraunhofer	$ heta = rac{\Delta y}{L}$	L grande tale che tan $\theta \approx \theta$	· Interferenza in fase Diff. cammino ottico	$\delta = k(r_2 - r_1) = \frac{2\pi}{\lambda} d\sin\theta$	Costruttiva	$r_2 - r_1 = n\lambda \to \sin\theta = n\frac{\lambda}{d} n \in \mathbb{Z}$	Distruttiva	$r_2 - r_1 = \frac{2n+1}{2}\lambda \to \sin\theta = \frac{2n+1}{2}\frac{\lambda}{d}$		Interf. riflessione su lastra sottile $(n \text{ indice rifr.}, t \text{ spessore lastra})$	Diff. cammino ottico $\delta = \frac{2\pi}{100} \frac{2nt}{100}$	$\lambda \cos \theta_t$ Massimi $m \in \mathbb{N}$	$t = \frac{2m+1}{4n}\lambda\cos\theta_t$	Minimi $m \in \mathbb{N}$	$t = \frac{m}{2n}\lambda\cos\theta_t$	· Interferenza N fenditure Diff. cammino ottico	$\delta = \frac{2\pi}{100} d\sin\theta$	λ Intensità	$I(\theta) = I_0 \left(\frac{\sin(N\frac{\delta}{2})}{\sin\frac{\delta}{2}} \right)^2$	Massimi principali $m \in \mathbb{Z}$	$\delta = 2m\pi \to \sin\theta = \frac{m\lambda}{d}$	$I_{MAX} = N^2 I_0$	· Attrito viscoso Equazione differenziale	$v' + \frac{v}{-} = K$	Soluzione	$v(t) = k\tau \left(1 - e^{-\frac{t}{\tau}}\right)$	■ ANALISI MATEMATICA	· Integrali ricorrenti	$\int \frac{1}{x^2 + r^2} dx = \frac{1}{r} \arctan \frac{x}{r}$	$\int \frac{1}{\sqrt{x^2 + r^2}} \mathrm{d}x = \ln \sqrt{x^2 + r^2} + x$
(106)	(198)		(199)		(200)	(201)		(202)	(203)	(204)		(205)	(206)	(207)	(806)	(100)	(200)	(GO1)	(210)	(211)	(212)	sso non	(213)	(914)	(215)		(010)	(216)	(217)		(218)	(219)) V	-0124	(Foc)	(261)	(262)	(263)	(264)		(265)	(266)
Indice di rifrazione $\frac{c}{c} = \frac{c}{\sqrt{b^2 b^2}}$	$n = - = \sqrt{\kappa_e \kappa_m}$	· Legge di Snell-Cartesio	$n_1 \sin \theta_1 = n_2 \sin \theta_2$	· Coefficienti di Fresnel Definizione	$r = \frac{E_r}{E_i} \qquad R = \frac{P_r}{P_i} = \frac{I_r}{I_i}$	$t = \frac{E_t}{E_i} \qquad T = \frac{P_t}{P_i} = \frac{I_t}{I_i}$	Raggio RIFLESSO polarizzato	$r_{\sigma} = \frac{\sin(\theta_t - \theta_i)}{\sin(\theta_t + \theta_i)}$	$r_{\pi} = \frac{\tan(\theta_t - \theta_i)}{\cot(\theta_t - \theta_i)}$	$\tan(\theta_t + \theta_i)$ $R_{\sigma} = r_{\sigma}^2 \qquad R_{\pi} = r_{\pi}^2$	Raggio TRASMESSO polarizzato	$t_{\sigma} = \frac{2N_t \cos \theta_t}{n_t \cos \theta_t + n_t \cos \theta_t}$	$t_p i = \frac{2n_i \cos \theta_i}{n_i \cos \theta_t + n_t \cos \theta_i}$	$T_{\sigma} = 1 - R_{\sigma} \qquad T_{\pi} = 1 - R_{\pi}$	Luce INOIN polarizzata $B = \frac{1}{L} \left(B + B \right) \left(T + T \right) (908)$	$10 = \frac{1}{2} \left(\frac{1}{10} + \frac{1}{10} \right) = \frac{1}{2} \left(\frac{1}{10} + \frac{1}{10} \right)$ Incidenza normale $\left(\cos \theta : \frac{2}{10} \cos \theta : \frac{1}{10} \right)$	$r = \frac{n_i - n_t}{n}$	$n_i + n_t$	$R = \left(\frac{n_i - n_t}{n_i + n_t}\right)^{\omega}$	$t = \frac{2n_i}{n_i + n_t}$	$T = \frac{4n_i n_t}{(n_1 + n_1)^2}$	Angolo di Brewster (il raggio riflesso non	na potat. pataneta) $\theta_i + \theta_t = \frac{\pi}{2} \to \theta_B = \theta_i = \arctan \frac{n_t}{2}$	$\frac{2}{2} \qquad n_i$ $R = \frac{1}{2} \cos^2(2\theta_i)$	T = 1 - R	· Pressione di radiazione	Superiore Association I_i	$p = \frac{-}{v}$ Superficie RIFLETTENTE	$n = \frac{I_t + I_t + I_T}{}$	v . Bannorto di nolarizzazione	$\beta_R = \frac{P_{\sigma}^{R} - P_{\pi}^{R}}{P_{\sigma}^{R} + P_{\pi}^{R}}$	$\beta_T = \frac{P_T^\sigma - P_T^\pi}{P_T^\sigma - P_T^\pi}$	$P_T^0 + P_T^0$ - INTEREDEDENTA C. DIEEDATO	NE	· Lavoro	$F = \nabla W = -\nabla U$ $M_{\text{obs}} = -\frac{1}{2} \sum_{i=1}^{n} \frac{1}{2} \sum_{i=$. Moto circolare unif. accelerato $v = \omega r$	$a = \frac{v^2}{r} = \omega^2 r$	$\theta(t) = \theta(0) + \omega(0)t + \frac{1}{2}\alpha t^2$	· Moto armonico Equazione differenziale	$x'' + \omega^2 x = 0$	$x(t) = A\sin(\omega t + \varphi)$
	(180)		(181)		(182)			(183)	(184)			(185)		(186)		(187)	a di Σ		(188)		(189)		(190)	(191)		(192)		(193)		(194)	(195)	(301)	(190)	(197)		(255)	(256)	(257)	(258)	(259)		(260)
. Effetto Joule	$\langle P_R \rangle = \frac{1}{2R}$	· Potenza media totale	$\langle P \rangle = \frac{V_0 I_0}{2} \cos(\phi)$	· V e I efficace	$V_{eff} = \frac{\sqrt{2}}{2}V_0 \qquad I_{eff} = \frac{\sqrt{2}}{2}I_0$	■ CAMPO EM e OTTICA	· Campi in un'onda EM (Nel vuoto $v = c$)	$E(x,t) = E_0 \cos(kx - \omega t)$	$B(x,t) = \frac{E_0}{v} \cos(kx - \omega t)$	$\omega = kv k = \frac{2\pi}{\lambda} \lambda = \frac{v}{\nu}$	· Vettore di Poynting	$\mathbf{S} = \frac{1}{\mu_0} \mathbf{E} \times \mathbf{B}$	\cdot Intensità media onda	$I = \langle S \rangle = \langle E^2 \varepsilon v \rangle$	· Potenza	$P = I\Sigma$	L'intensità varia in base alla scelta di Σ	· Equazioni di continuita Teorema di Poynting	$\nabla \cdot \mathbf{S} + \mathbf{E} \cdot \mathbf{j} + \frac{\partial u}{\partial t} = 0$	Conservazione della carica	$\nabla \cdot \mathbf{j} + \frac{\partial \rho}{\partial t} = 0$	· Densità di en. campo EM	$u_{EM} = \frac{1}{2} (\mathbf{E} \cdot \mathbf{D} + \mathbf{B} \cdot \mathbf{H})$	$U_{EM} = \int_{\mathbb{R}^3} u_{EM} \mathrm{d} au$	· Densità di quantità di moto	0.00 O.00	· Effetto Doppler	$\nu' = \nu \frac{v - v_{oss}}{v - v_{sorg}}$	· Oscillazione del dipolo	$I(r,\theta) = \frac{I_0}{r^2} \sin^2(\theta)$	$P = \int \int I(r,\theta) dr d\theta = \frac{8}{3}\pi I_0$. Velocità dell'onda $rac{1}{2}$	$v^{-} = \frac{k_e \in 0 k_m \mu_0}{1}$	$c^2 = \frac{1}{\varepsilon_0 \mu_0}$	■ UNITÀ DI MISURA Wh	$H = \frac{Wb}{A} = Tm^2 = \frac{m^2 kg}{A^2 s^2}$	$\Omega = \frac{V}{A} = \frac{V^2}{W} = \frac{m^2 kg}{A^2 s^3}$	$T = \frac{N}{Am} = \frac{kg}{As^2}$	$V = \frac{J}{C} = \frac{W}{A} = \frac{m^2 kg}{s^3 A}$	$F = \frac{C}{V} = \frac{C^2}{J} = \frac{A^2 s^4}{m^2 kg}$	■ FISICA 1	. Momento torence $M=\mathbf{r} \times \mathbf{F} = I \alpha$

$\cos \alpha \sin \beta $ (288)	$\sin \alpha \sin \beta$ (289)	(290)	(291)	$\frac{\alpha}{\cos \alpha} \tag{292}$				
. Identità geometriche $\sin(\alpha \pm \beta) = \sin\alpha \cos\beta \pm \cos\alpha \sin\beta (288)$	$\cos(\alpha \pm \beta) = \cos\alpha \cos\beta \mp \sin\alpha \sin\beta (289)$	$\cos\frac{\alpha}{2} = \pm\sqrt{\frac{1+\cos\alpha}{2}}$	$\sin\frac{\alpha}{2} = \pm\sqrt{\frac{1-\cos\alpha}{2}}$	$\tan \frac{\alpha}{2} = \frac{1 - \cos \alpha}{\sin \alpha} = \frac{\sin \alpha}{1 + \cos \alpha}$				
• Ic (282)	(283) (284)	× B) (285)	(586)	(287)	Cilindriche	$\frac{\partial f}{\partial r}\mathbf{r} + \frac{1}{r}\frac{\partial f}{\partial \theta}\theta + \frac{\partial f}{\partial z}\mathbf{z}$	$\frac{1}{r}\frac{\partial F_r}{\partial r} + \frac{1}{r}\frac{\partial F_\theta}{\partial \theta} + \frac{\partial F_z}{\partial z}$	$ \begin{pmatrix} \frac{1}{r} \frac{\partial F_z}{\partial \phi} - \frac{\partial F_{\phi}}{\partial z} \\ \frac{\partial F_r}{\partial z} - \frac{\partial (rF_z)}{\partial r} \\ \frac{1}{r} \begin{pmatrix} \partial (rF_{\phi}) & \partial F_r \\ \partial r & \partial \phi \end{pmatrix} $
. Identità vettoriali $\nabla\cdot (\nabla\times \mathbf{A})=0$	$\nabla \times (\nabla f) = 0$ $\nabla \cdot (f\mathbf{A} = f\nabla \cdot \mathbf{A} + \mathbf{A} \cdot \nabla f$	$\nabla(\mathbf{A} \cdot \mathbf{B}) = \mathbf{B} \cdot (\nabla \times \mathbf{A}) - \mathbf{A} \cdot (\nabla \times \mathbf{B})$	$\nabla \times (\nabla \times \mathbf{A}) = \nabla(\nabla \cdot \mathbf{A}) - \nabla^{2} \mathbf{A}$	$\mathbf{A} \times (\mathbf{B} \times \mathbf{C}) = \mathbf{B}(\mathbf{A} \cdot \mathbf{C}) - \mathbf{C}(\mathbf{A} \cdot \mathbf{B})$	Sferiche	$\frac{\partial f}{\partial r} \mathbf{r} + \frac{1}{r} \frac{\partial f}{\partial \theta} \theta + \frac{1}{r \sin \theta} \frac{\partial f}{\partial \phi} \phi$	$\frac{1}{r^2}\frac{\partial r^2F_r}{\partial r} + \frac{1}{r\sin\theta}\frac{\partial F_\theta \sin\theta}{\partial \theta} + \frac{1}{r\sin\theta}\frac{\partial F_\phi}{\partial \phi}$	$\frac{1}{\sin \theta} \left(\frac{\partial F_{\phi} \sin \theta}{\partial \theta} - \frac{\partial F_{\theta}}{\partial \phi} \right)$ $\frac{1}{r} \left(\frac{1}{\sin \theta} \frac{\partial F_{r}}{\partial \phi} - \frac{\partial (rF_{\phi})}{\partial r} \right)$ $\frac{1}{r} \left(\frac{\partial (rF_{\theta})}{\partial r} - \frac{\partial F_{r}}{\partial \theta} \right)$
	(279)	(280)	$\operatorname{in}(\beta t)$ (281)					$\frac{1}{r \sin \theta} \left(\frac{1}{r \sin \theta} \right)$
ni 0	$y(t) = c_1 e^{\lambda_1 t} + c_2 e^{\lambda_2 t}$ Se $\Delta = 0$	$y(t) = c_1 e^{\lambda_1 t} + t c_2 e^{\lambda_2 t}$ Se $\Delta < 0$	$y(t) = c_1 e^{\alpha t} \cos(\beta t) + c_2 e^{\alpha t} \sin(\beta t) (281)$	$\operatorname{con} \alpha = \operatorname{Re}(\lambda) \in \beta = \operatorname{Im}(\lambda)$	Cartesiane	$\frac{\partial f}{\partial x}\mathbf{x} + \frac{\partial f}{\partial y}\mathbf{y} + \frac{\partial f}{\partial z}\mathbf{z}$	$\frac{\partial F_x}{\partial x} + \frac{\partial F_y}{\partial y} + \frac{\partial F_z}{\partial z}$	$ \begin{pmatrix} \frac{\partial F_z}{\partial y} - \frac{\partial F_y}{\partial z} \\ \frac{\partial F_x}{\partial x} - \frac{\partial F_z}{\partial x} \\ \frac{\partial z}{\partial x} - \frac{\partial F_z}{\partial x} \\ \frac{\partial F_y}{\partial x} - \frac{\partial F_x}{\partial y} \end{pmatrix} $
	(276) $y(t) = c_1 \epsilon$ $Se \Delta = 0$		(278) y(t) = 0			Gradiente ($\nabla f =$)	Divergenza $(\nabla \cdot \mathbf{F} =)$	Rotore $(\nabla \times \mathbf{F} =)$
· Differenziale di primo ordine Forma generale	$y'(t) + a(t)y(t) = b(t)$ Soluzione $y'(t) = e^{-A(t)(c+\int b(t)e^{A(t)}dt)}$	Differenziale di secondo ordine omogeneo Forma generale	$y'' + ay' + by = 0 \qquad a, b \in \mathbb{R}$	$\lambda_{1,2} \in \mathbb{C}$ sono le soluzioni dell'equazione associata				

ll laplaciano di un campo scalare Φ , in qualunque coordinata, è $\nabla \cdot \nabla \Phi$