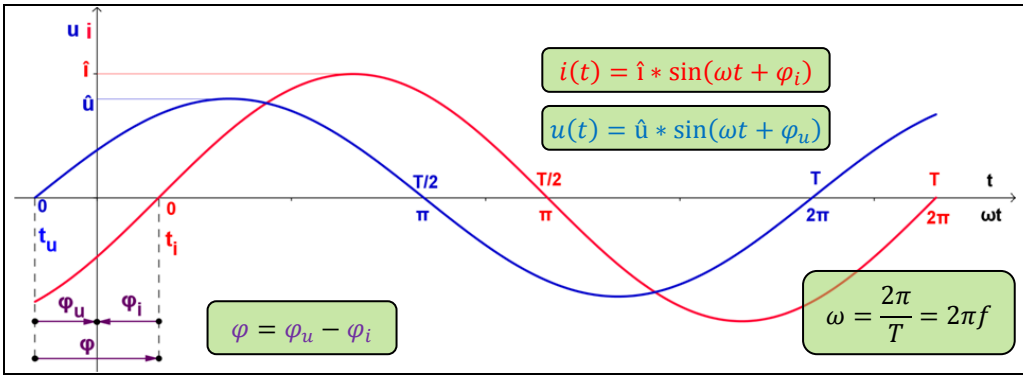
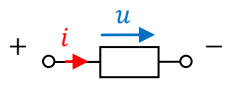
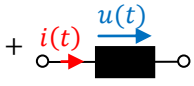
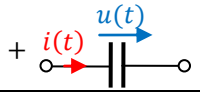
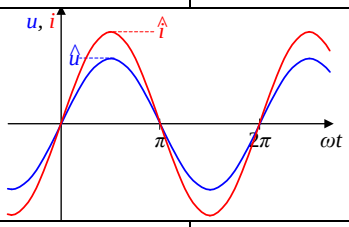
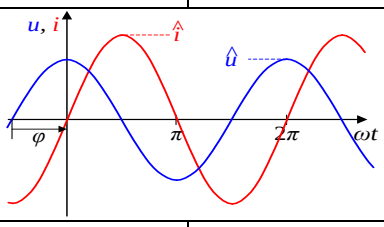
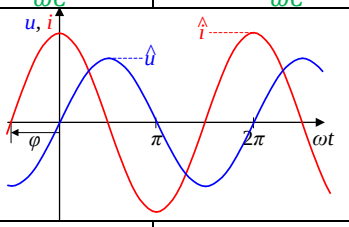
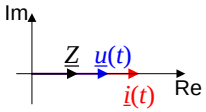
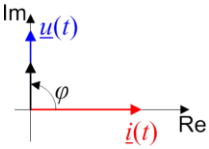
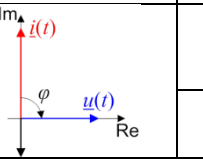
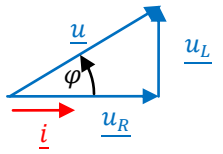
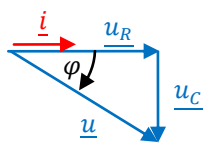
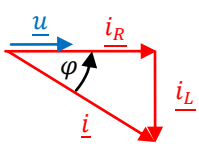
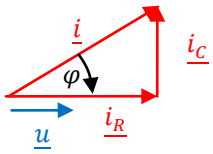
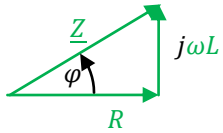
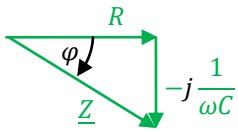
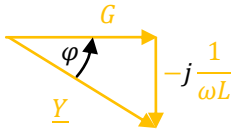
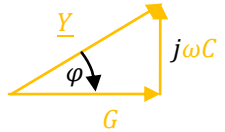
WECHSELSTROM



L	Induktivität	$[L] = H = \frac{Vs}{A}$
C	Kapazität	$[C] = F = \frac{As}{V}$
R	Widerstand	$[R] = \Omega$
G	Leitwert	$[G] = S$
Impedanz		$\underline{Z} = \frac{\underline{U}}{\underline{I}} = \frac{1}{\underline{Y}} = \frac{\hat{u}}{\hat{\imath}}$
Admittanz		$\underline{Y} = \frac{\underline{I}}{\underline{U}} = \frac{1}{\underline{Z}} = \frac{\hat{\imath}}{\hat{u}}$

Ohmscher Widerstand, R		Ideale Spule, L		Idealer Kondensator, C	
					
$R(Widerstand)$		$x_L(Blindwiderstand) = \omega L$		$x_C(Blindwiderstand) = \frac{-1}{\omega C}$	
$G(Leitwert) = 1/R$		$B_L(Blindleitwert) = -1/\omega L$		$B_C(Blindleitwert) = \omega C$	
$B = 0\ (ohmisch) = 1/x$		$B < 0\ (induktiv)$		$B > 0\ (kapazitiv)$	
$u(t) = \hat{u} * \sin(\omega t)$ $i(t) = \hat{\imath} * \sin(\omega t)$		$u(t) = \hat{u} * \sin(\omega t + \varphi_u)$ $i(t) = \hat{\imath} * \sin(\omega t)$		$u(t) = \hat{u} * \sin(\omega t)$ $i(t) = \hat{\imath} * \sin(\omega t + \varphi_i)$	
$u(t) = R * i(t)$		$u(t) = L * \frac{di(t)}{dt}$		$i(t) = C * \frac{du(t)}{dt}$	
$\hat{u} = R * \hat{\imath}$	$U\_\_ = R * I\_\_$	$\hat{u} = \omega L * \hat{\imath}$	$U\_\_ = \omega L * I\_\_$	$\hat{u} = \frac{1}{\omega C} * \hat{\imath}$	$U\_\_ = \frac{1}{\omega C} * I\_\_$
					
$\varphi_u = \varphi_i$ $\varphi = 0$	$\underline{u}(t) = R * \underline{i}(t)$	$\varphi = \varphi_u - \varphi_i = \frac{\pi}{2}$	$\underline{u}(t) = j\omega L * \underline{i}(t)$	$\varphi_u - \varphi_i = -\frac{\pi}{2}$	$\underline{u}(t) = j\omega C * \underline{i}(t)$
$\underline{u}(t) = \hat{u} * e^{j\omega t}$	$\underline{i}(t) = \hat{\imath} * e^{j\omega t}$	$\underline{u}(t) = L * \frac{d\underline{i}(t)}{dt}$	$\underline{i}(t) = \hat{\imath} * e^{j\omega t}$	$\underline{u}(t) = \hat{u} * e^{j\omega t}$	$\underline{i}(t) = C * \frac{d\underline{u}(t)}{dt}$
	$\underline{Z} = R = \frac{1}{G}$ $\underline{Y} = G = \frac{1}{R}$		$\underline{Z} = jx_L = j\omega L$ $\underline{Y} = jB_L = -\frac{j}{\omega L}$		$\underline{Z} = jx_C = -j\frac{1}{\omega C}$ $\underline{Y} = jB_C = j\omega C$

Vergleich	Reihenschaltung / Serienschaltung		Parallelschaltung	
	$\underline{Z}_1 = \underline{Z}_2$		$\underline{Y}_1 = \underline{Y}_2$	
	R + L	R + C	R + L	R + C
Zeigerdiagramm der Spannung der Ströme				
	$\underline{u} = \underline{u}_R + \underline{u}_L + \underline{u}_C$		$\underline{i} = \underline{i}_R + \underline{i}_L + \underline{i}_C$	
Widerstands -dreieck Leitwert -dreieck				
	$\underline{Z} = R + j\omega L - j\frac{1}{\omega C}$		$\underline{Y} = G - j\frac{1}{\omega L} + j\omega C$	