Stability Analysis: Giesekus

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1 Equation Coefficients

1.1 A_{11} Equation

$A_{11}\ \omega =$

p	0
v_1	$-A_{11,x_{10}} + 2A_{11_0} ik_1 + 2A_{12_0} ik_2$
v_2	$-A_{11,x_{20}}$
A_{11}	$-(v_{1_0} ik_1 + v_{2_0} ik_2) + 2v_{1,x_{10}} - 1 - \alpha(2A_{11_0} - 2)$
A_{12}	$2v_{1,x_{20}} - \alpha(2A_{12_0})$
A_{22}	0

1.2 A_{12} Equation

$A_{12}\ \omega =$

p	0
v_1	$-A_{12,x_{10}} + A_{12_0} ik_1 + A_{22_0} ik_2$
v_2	$-A_{12,x_{20}} + A_{11_0} ik_1 + A_{12_0} ik_2$
A_{11}	$v_{2,x_{10}} - \alpha(A_{12_0})$
A_{12}	$-(v_{1_0} ik_1 + v_{2_0} ik_2) + v_{1,x_{10}} + v_{2,x_{20}} - 1 - \alpha(A_{11_0} + A_{22_0} - 2)$
A_{22}	$v_{1,x_{20}} - \alpha(A_{12_0})$

1.3 A_{22} Equation

$A_{22}\ \omega =$

p	0
v_1	$-A_{22,x_{10}}$
v_2	$-A_{22,x_{20}} + 2A_{12_0} ik_1 + 2A_{22_0} ik_2$
A_{11}	0
A_{12}	$2v_{2,x_{10}} - \alpha(2A_{12_0})$
A_{22}	$-(v_{1_0} ik_1 + v_{2_0} ik_2) + 2v_{2,x_{20}} - 1 - \alpha(2A_{22_0} - 2)$

1.4 x_1 Momentum Equation

$El^{-1}v_1\ \omega =$

p	$-ik_1$
v_1	$-El^{-1}(v_{1,x_{10}} + v_{1_0} ik_1 + v_{2_0} ik_2) - \beta(k_1^2 + k_2^2)$
v_2	$-El^{-1} v_{1,x_{20}}$
A_{11}	ik_1
A_{12}	ik_2
A_{22}	0

1.5 x_2 Momentum Equation

$El^{-1}v_2\ \omega =$

p	$-ik_2$
v_1	$-El^{-1} v_{2,x_{10}}$
v_2	$-El^{-1}(v_{2,x_{20}} + v_{1_0} ik_1 + v_{2_0} ik_2) - \beta(k_1^2 + k_2^2)$
A_{11}	0
A_{12}	ik_1
A_{22}	ik_2

1.6 Mass Equation

0 $\omega =$

p	0
v_1	ik_1
v_2	ik_2
v_3	ik_3
A_{11}	0
A_{12}	0
A_{13}	0
A_{22}	0
A_{23}	0
A_{33}	0

2 Repeated Terms/Phrases

2.1 Most Helpful

$A_{11_0}ik_1 + A_{12_0}ik_2$

$A_{12_0}ik_1 + A_{22_0}ik_2+$

$k_1^2 + k_2^2$

2.2 Also Helpful

$v_{1_0}ik_1 + v_{2_0}ik_2$

$v_{1,x_{20}} + v_{2,x_{10}}$