

JYScãÑÑ s ys-VÑÓ yÓ ÓÑŸ SéÑ# Ó ú ½ ýúý

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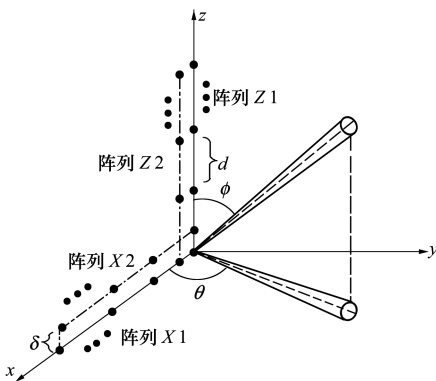
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 >ÿ"θ_i â !" Ò' φ_i â !" Ò'FKbD±±Òc-
 FÜ =•.g g

$$\begin{cases} x_m \%o = \sum_{i=\beta}^k \alpha_i \%o \phi_i \alpha_i \%o \phi_i \theta_i \phi + n_{xm} \%o \\ z_m \%o = \sum_{i=\beta}^k \beta_i \%o \phi_i \alpha_i \%o \phi_i \theta_i \phi + n_{zm} \%o \end{cases}$$

< Z "n_{xm} %o ; n_{zm} %o g ; \$: , % ±±Í TP Ü
 +ª — " — ì (' g σ_n⁰ %m = ß"0%α_β %o¹ x₀ %o 3
 X = • .g KbD X ß¹ X 0 ±±Òc- FÜε_β %o¹ z₀ %o 3
 X g KbD Z ß¹ Z 0 ±±Òc- FÜε_β %o "φ o¹ α₀ %o"
 φ o 3 X = • .g %æ½ \$ U X ß¹ X 0 ±±æ >- FÜ +
 β_β %o "φ o¹ β₀ %o "φ o 3 X = • .g %æ½ \$ U Z ß¹ Z 0
 ±±æ >- FÜ %

$$\begin{cases} \alpha_\beta \%o \phi = \beta^{d \sin \theta / \lambda} \alpha_0 \%o \phi \\ \alpha_0 \%o \phi = \alpha_\beta \%o \phi e^{-d \sin \theta / \lambda} \end{cases}$$

$$\begin{cases} \beta_\beta \%o \phi = \beta^{d \sin \phi / \lambda} \beta_0 \%o \phi \\ \beta_0 \%o \phi = \beta_\beta \%o \phi e^{-d \sin \phi / \lambda} \end{cases}$$

ææ s_i %o "φ t o \ 0Yi W3 0 #1/±±ÿ \$ ó Ó * • "
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$$6 s_i \%o \phi_i \alpha_i \%o \phi_i \theta_i o =$$

ææ s_i p_i %o "φ t o %ß - θ' o %ß - φ' o %æ o
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$$p_i \%o \phi_i \theta_i \phi = \beta \%o$$

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$$\begin{cases} \alpha_0 \% \phi_i = \alpha_{\beta} \% \phi_i \circ \text{ } \delta \text{ } \phi_i / \lambda \\ \alpha_0 \% \phi_i \dot{\phi} = \alpha_{\beta} \% \phi_i \circ \dot{\phi} \text{ } \delta \text{ } \phi_i / \lambda \\ \alpha_0 \% \phi_i \ddot{\phi} = \alpha_{\beta} \% \phi_i \circ \ddot{\phi} \text{ } \delta \text{ } \phi_i / \lambda \\ \alpha_0 \% \phi_i \text{ } \delta = \phi_i / \lambda \alpha_{\beta} \% \phi_i \circ \text{ } \delta \text{ } \phi_i / \lambda \end{cases} \%00$$

ææÉ δ/λ • ß" α₀ % φ_i φ̇ ±0Y¹ M! * *

: @ÎF ...U 8 Dpi 2(α₀ % φ_i φ̇) α_β % φ_i φ̇ δ φ_i / λ %00

x_β %0 = A_{βs} "A_{β0} "A_β 0 ¼ n_x %0 %0

ææÇ v X OKbD+±- v æ>- FÜ A_{0s} "A₀₀ "A₀ 0g

$$\begin{cases} A_{0s} = \alpha_0 \% \phi_{\beta} \phi_{\beta} \circ \alpha_0 \% \phi_0 \phi_0 \circ - \alpha_0 \% \phi_k \phi_k \circ \dot{\phi} \\ A_{00} = \alpha_0 \% \phi_{\beta} \phi_{\beta} \circ \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 - \alpha_0 \% \phi_k \phi_k \circ \dot{\phi} \\ \alpha_0 \% \phi_k \phi_k \circ \dot{\phi} \\ A_0 = \alpha_0 \% \phi_{\beta} \phi_{\beta} \circ \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 - \alpha_0 \% \phi_k \phi_k \circ \dot{\phi} \\ \alpha_0 \% \phi_k \phi_k \circ \dot{\phi} \end{cases}$$

ææÇ v - v #½ FÜ s₃₄ s₃₄ s₃₄ s₃₄ 0̇

$$\begin{cases} s_{34} = \rho_{\beta} \rho_{\phi} - \rho_k \dot{\phi} \\ s_{34} = \rho_{\theta} \rho_{\omega} - \rho_{k\theta} \dot{\phi} \\ s_{34} = \rho_{\beta} \rho_{\phi} - \rho_{k\phi} \dot{\phi} \end{cases} \%00$$

ææF X OKbD+±0 c- FÜ =.g g

x₀ %0 = A_{0s} "A₀₀ "A₀ 0 ¼ n_{x0} %0 %0

ææf › %002%00< Ä] - 8 2(A_{0s} "A₀₀ "A₀ 0) A_{βs} "A_{β0} "A_β 0 0 %0

< Z

$$\begin{cases} \rho_{i!} = \bullet_i \% \phi "t \circ \theta \phi \\ \rho_{i\theta} = \bullet_{\theta} - \theta_i \alpha_i \% \phi "t \circ \theta \phi \\ \rho_{i\phi} = \bullet_{\phi} - \phi_i \alpha_i \% \phi "t \circ \theta \phi \end{cases} \%00$$

< Z

Φ = › ±k% δ φ_β λ " δ φ_θ λ " " δ φ_k / λ 0

ææ3 Kbd Z ß¹ Z 0±æ>- FÜ U % φ_i φ̇ - Kc " ÿ 30̇ , - - 8

ææ @î; " ...U 8 2(ß⁰

$$6 \rho_{i!} \rho_{in} \dot{\phi} = \begin{cases} \sigma_{si}^0 \alpha \alpha \alpha = n = ! \\ \sigma_{si}^0 M_{\theta i} \alpha \alpha = n = \theta \\ \sigma_{si}^0 M_{\phi i} \alpha \alpha = n = \phi \\ ! \alpha \alpha \alpha 3 n \end{cases} \%00$$

β_β % φ₀) β_β % φ_i φ̇ + β_β % φ_i φ̇ φ̇ - φ_i φ̇ %0

β₀ % φ₀) β₀ % φ_i φ̇ + β₀ % φ_i φ̇ φ̇ % - θ_i φ̇ + β₀ % φ_i φ̇ φ̇ φ̇ - φ_i φ̇ %0x0

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M_{θi} = •_θ - θ_i 0_{p_i} % φ "t o θ φ %0

M_{φi} = •_φ - φ_i 0_{p_i} % φ "t o θ φ %0x0

β₀ % φ_i φ̇ = αβ_β % φ_i φ̇ 0 % δ φ̇ = φ_i / λ 0 δ φ̇ = φ_i / λ æ %0

β₀ % φ_i φ̇ = β_β % φ_i φ̇ φ̇ δ φ̇ = φ_i / λ + æ % δ φ̇ = φ_i / λ 0 δ φ̇ = φ_i / λ β_β % φ_i φ̇ 0 %0

*^ » : 9+±3 0#½ : , % ±" F

6 s₃₄ 0̇ %0 ±k% "M_θΛ "M_φΛ 0 %0

$$\begin{cases} \Lambda = \text{› } \pm k \% \sigma_{s\beta}^0 \sigma_{s0}^0 - \sigma_{s\phi}^0 \circ \\ M_{\theta} = \text{› } \pm k \% M_{\theta\beta} "M_{\theta 0} - "M_{\theta\phi} \circ \\ M_{\phi} = \text{› } \pm k \% M_{\phi\beta} "M_{\phi 0} - "M_{\phi\phi} \circ \end{cases} \%0$$

ææÉ δ/λ • ß" F %0" 0 < 0 ÷ %0 0 < 0Y¹ M! * * : @ÎF 6 8 2((β₀ % φ_i φ̇) β_β % φ_i φ̇ δ φ̇ = φ_i / λ (β₀ % φ_i φ̇) β_β % φ_i φ̇ δ φ̇ = φ_i / λ %00

ææÇ v X BKbD+±- v æ>- FÜ A_{βs} "A_{β0} "A_β 0g

$$\begin{cases} A_{\beta s} \% \phi = \alpha_{\beta} \% \phi_{\beta} \phi_{\beta} \circ \alpha_{\beta} \% \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 - \alpha_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \\ A_{\beta 0} \% \phi = \alpha_{\beta} \% \phi_{\beta} \phi_{\beta} \circ \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 - \alpha_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \\ \alpha_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \\ A_{\beta} \% \phi = \alpha_{\beta} \% \phi_{\beta} \phi_{\beta} \circ \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 - \alpha_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \\ \alpha_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \end{cases} \%00$$

ææÇ v Z BKbD æ>- FÜ B_{βs} "B_{β0} 0

$$\begin{cases} B_{\beta s} = \beta_{\beta} \% \phi_{\beta} \phi_{\beta} \circ \beta_{\beta} \% \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 - \beta_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \\ B_{\beta 0} = \beta_{\beta} \% \phi_{\beta} \phi_{\beta} \circ \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 \phi_0 - \beta_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \\ \alpha_{\beta} \% \phi_k \phi_k \circ \dot{\phi} \end{cases} \%0$$

ææF Z BKbD+±0 c- FÜ =.g g

z_β %0 = B_{βs} "B_{β0} 0 ¼ n_z %0 %0

ææÇ v Z OKbD æ>- FÜ B_{βs} "B_{β0} 0g

$$\begin{cases} B_{03} = \beta_0 \theta_{\beta} \phi_{\beta} \beta_0 \theta_{\beta} \phi_0 \theta_0 - \beta_0 \theta_{\beta} \phi_k \theta_0 \\ B_{00} = \beta_0 \theta_{\beta} \phi_{\beta} \theta_0 \phi_0 \beta_0 \theta_{\beta} \phi_0 \theta_0 - \\ \alpha \beta_0 \theta_{\beta} \phi_k \theta_0 \end{cases}$$

Fü+±D½ÿ %

3 Z ß¹ Z 0KbD±± Ò c- FÜ5 £ - 8

$$z_{\beta_0} \theta_{\beta_0} = \begin{bmatrix} z_{\beta} \theta_{\beta} \\ z_0 \theta_0 \end{bmatrix} = B_{z\beta} B_{z_0} \Theta^{\beta} n_z \theta_0 \theta_{\beta} \times \theta_0$$

ææZ 0KbD±± Ò c- FÜ =•.g g

< Z

$$z_0 \theta_0 = B_{03} B_{00} \Theta^{\beta} n_{z_0} \theta_0$$

$$B_{z\beta} B_{z_0} \Theta = \begin{bmatrix} B_{\beta\beta} B_{\beta_0} \\ B_{0\beta} B_{0_0} \end{bmatrix} \theta_{\beta} \theta_0$$

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æ B₀₃ B₀₀ Ò) B_{ββ} B_{β0} Ψ B_{β0} Ψ Ò

$$n_z \theta_0 = \begin{bmatrix} n_{z\beta} \theta_{\beta} \\ n_{z_0} \theta_0 \end{bmatrix} \theta_{\beta} \theta_0$$

æΨ = > ±k%0 θ δ ÷ θ β = φ λ " θ δ ÷ θ 0 = φ λ " - "

æææ θ δ ÷ θ k = φ λ / 0

ææZ ß¹ Z 0KbD±± Ò c- FÜ | æ - Kb =•.g g

$$R_z^{\beta_0} = 6 z_{\beta_0} \theta_{\beta_0} \alpha_{\beta_0} \theta_{\beta_0} \theta_0$$

ææ& | æ - Kb R_z^{β0} E = y! @ 3? "Ä] ; | æ - Kb- T+±k W! @i & Á+±! @ > FÜ± = ±± } /\$ K! E_z %E_z } /\$ K! ; B_{zβ} M = ±± } /\$ K! ,%9 " F ... U - W_k × k L< t / - Kb Q \$ Bà 8 2(

3 X ß¹ X 0KbD±± Ò c- FÜ5 £ - 8

$$x_{\beta_0} \theta_{\beta_0} = \begin{bmatrix} x_{\beta} \theta_{\beta} \\ x_0 \theta_0 \end{bmatrix} = A_{x\beta} A_{x_0} A_x \Theta^{\beta} n_x \theta_0$$

< Z

$$A_{x\beta} A_{x_0} A_x \Theta = \begin{bmatrix} A_{\beta\beta} A_{\beta_0} A_{\beta} \\ A_{0\beta} A_{0_0} A_0 \end{bmatrix} \theta_{\beta} \theta_0$$

$$n_x \theta_0 = \begin{bmatrix} n_{x\beta} \theta_{\beta} \\ n_{x_0} \theta_0 \end{bmatrix} \theta_{\beta} \theta_0$$

ææî ß¹ î 0KbD±± Ò c- FÜ | æ - Kb =•.g g

$$R_x^{\beta_0} = 6 x_{\beta_0} \theta_{\beta_0} \alpha_{\beta_0} \theta_{\beta_0} \theta_0$$

ææU <> ÿ Ò - , +±Z # 8 " M_{θi}¹ M_{φi} F* \ < » ß ±±• " & | æ - Kb R_x^{β0} E = y! @ 3? "Ä] | æ - Kb- T+±k W! @i & Á+±! @ > FÜ± = ±± } /\$ K! E_x %E_x } /\$ K! ; A_{xβ} M = ±± } /\$ K! ,%9 " F ... U - W_k × k L< t / - Kb T \$ Bà 8 2(

$$E_x = \begin{bmatrix} A_{\beta\beta} \\ A_{\beta_0} \Phi \end{bmatrix} T \theta_{\beta} \theta_0$$

ææ E_{xβ}¹ E_{x0} 3 X g E_x ±±7 k = y¹ 8 k = y F 6

$$E_{x\beta} = A_{\beta\beta} T \theta_{\beta} \theta_0$$

$$E_{x_0} = A_{0\beta} T \theta_{\beta} \theta_0$$

ææ Ä] 8 2(

$$E_{x_0} = E_{x\beta} T^{-\beta} \Phi T \theta_{\beta} \theta_0$$

ææÇ v Ω_x = T^{-β} Φ T F

$$\Omega_x = E_{x\beta}^+ E_{x_0} \theta_{\beta} \theta_0$$

ææ£ Z %¼ o^w =•.g WE30Ä } " û 59 lo ? ' 3

0 #½±Z ð >ÿ

$$\phi_i = U_{\beta_0} \frac{U_{\beta k} \theta_{\beta_0}}{0 \delta / \lambda} \alpha_i = \beta^0 \theta - \theta_k \theta_{\beta_0} \theta_0$$

< Z " η_i g Ω_x 0Yi W! @i % U_{βk} %0 =•.g :

$$L \theta_{\beta} \theta_0 = \frac{\beta}{\hat{A} A_{x\beta} A_{x_0} A_x \Theta^{\beta} R_x^{\beta_0} \theta_{\beta} A_{x\beta} A_{x_0} A_x \hat{A}_F} \theta_{\beta} \theta_0$$

< Z " R_x^{β0} g = yKbD X ß¹ X 0+± | æ - Kb] @î

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 >ÿ%>ÿÓ- , ±t æf A G_s Ç v g

$$G_s = \sqrt{\frac{\beta_{M_{\hat{u}}}}{M_{\hat{u}} \xi} \mathbb{R} \% \sigma_{\theta}^{\xi} - \sigma_{\theta} o^0 + \frac{\beta_{M_{\hat{u}}}}{M_{\hat{u}} \xi} \mathbb{R} \% \sigma_{\phi}^{\xi} - \sigma_{\phi} o^0}$$

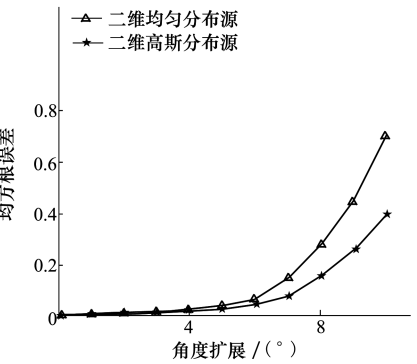
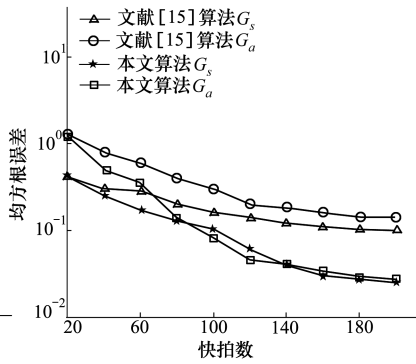
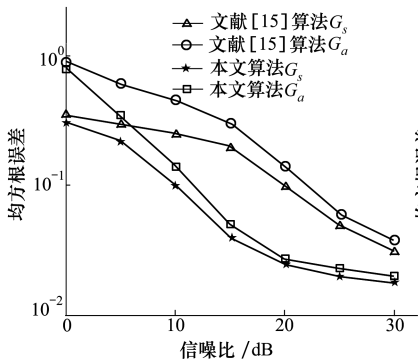
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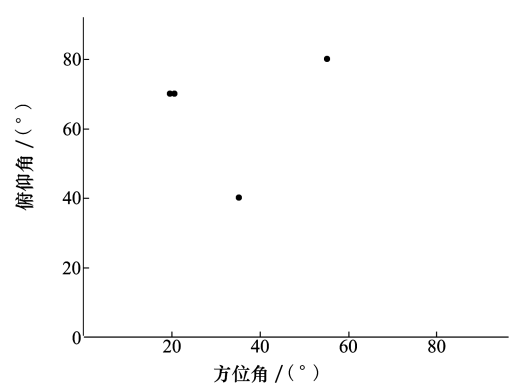
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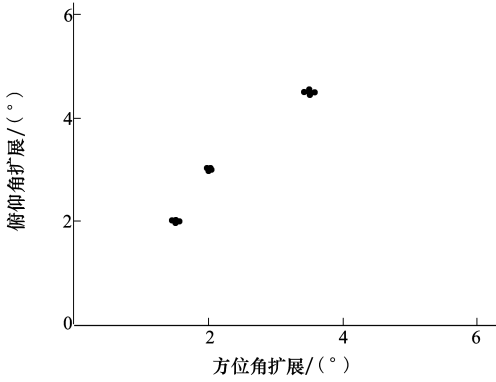
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 èøù =>¿k K U¿i•¿U¿¿¿ ¶Uw¿Uw¿¿" ß "" ßx %øøá ßK
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 ßßÖü ö¶H Ä" @6¶H" .çø¶H_Žö Ö ö 6 w¶ Uw¿!•ø qqøUwð !•ç d¿] = =¿ è ø•ø U¿ HÜUw¶ =¿ ÖÖÖ •]] ¿¿U Uw¿!•ø .ÖŽ
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 ß Ö> .6X5ö @Ž64w¿¿¿¿¿ X6 ö køw¶ w Xü w¶ Ö¿!ü i•üü Ä•üU=Uw¿!•ø ¿ ö ¿ üwð U¿ 6 Uw¿!•ø .ÖŽ d¿ •¿

