

µāÇá Óyó ÓÑ# SéÑ# ÓyúáÓ ÓÓ

# ' » f E 7 E/ Á ú ' 1 Õ . Ô c 3 Fz+± 4 C CWæ" -A/£

E)ì TÆw' " ° wE <Kñß w, \ ß

%ßŽ-D GT " 7 Õ C " K•"K,>->-¶ œœß! ß0 +0ŽŽ \* ç!>? k ÈKsÈK\_C " K• 4 R2( " D Û œß! 00!"o

...œ>@ÁUf E +±ú' Ô c o&U' wqç=kd' Õ . Ô c 3Fz>fçU ç=è ù ç=ŷ U •ùU# ç=ŷ Õ öd%4 5+± æ' - ý E Ä g U : 9+±N=yŽ # 86\* L7 E/ Á ] C CW 9+±4 NÄu ø3ú³ 3üŷ+±{ Kò> A' X æ' ÷3üŷ+±ú' Ô c æ' wç; ý ' ³ E/\*U » - 7YN Ô2(4 N, +±f E ú' Ô c æ' w ; |µ & - 7YÔ c 3Fzæ' " = ' - \*\* 7bg Õ . +±K MÄwø3ú³ - .ú Õ . Ô c 3Fzæ' w£ 3 £ = Ì Á\*U » j WK (Ü2(4 +±@@ÎZ E@ôú' " \*†³ 2(4 Z/ Ç+±ç3ì TM!wß : / Ç+±ç3ì TM!µ è wõEG DôÕ . 3Fz- \*\* 7bg TEM=+±ž ú - < , L4 É=• ; m@@†±K (Ü æu ¼ 67œæ +±ú Á' T wU : 9+±N=yŽ # 8 t È(Ý & 4 \$+±7œæ C CW£ ¼ 6 - Ç+±QçY T

œl[ œ@UÄ Kò> A' X æ' ú' Ô c Ô c 3Fz 7bg Õ . 4 C CW Z + 31" \$ ÄÄxßŽ 0œœœœ' ([ 4 - . Äöœœœœ' 0 4C\$ Áß! !!Kœ' %œ! ß o! ßK ßœK@

œœ(Ý N=y Ô c g -A/£ M³ S ' ³ µ G 6BÐ£ A ù 6 > E T+±Ô c K MÄ' £ h ) Õ . \ L<3ì T+±"µ G!A Õ! T œ\ : -> Ç+±"59=ØÔ &AŽ+±DÀ' ö \ ¼ 6 z4>K)ç ¹ EL( K)ç +±% ì - ' " &N=y Ô c 2(4 +±T6\*L-lo j \ µ P +±"N g L->@UD° T+± N=y 23ì² ¼ 6D° T+± Ç> Ó" £ A>@\* r 3 V \*Um6+±A Ö7bL• ¹ Ö È- FÜ Ô c p R - T g Ô Ô c 6\* È %U - Dp j " \* \* » U T D ù ç=ŷ Ô c ¹ U E @ D C ELg +± ELD™C Z - \*U M4 +± È +>÷ ñ ? æ " ß G E t ] µ GK MÄ" m V \*UL<3ì T+± Ô c æ" U 7 E @K) Ž # 8 8 ä Ä ! a +± T 6\* 3ü Ä L e F ù > @ %

ú Nµßì T C °°\ - .ú L<3ì T+±@@Îæ" " ° ; -> 1)3E È1" , +±ç3ì T Õ . %V\*UL<3ì T ú Nµ'E È &=ØÔ FÜ Ô \*L ž ú +±ç3ì TM!G=Øµ è " x ; \*L = - WL H+±K (Ü2(4 Õ . %E .ú @K @@Î +±ç3ì T Ô c æ" - H³ \*U , - Ô c • C CW 9N =yŽ # 8N=y4 +±u , %' ([ Kç\* = Ì ] U N Ô M³ Á \*U³ A æ" %g ³ ¹ = ú Nµßì T C æ " "2(4 +±ç3ì T ò M"¹ • - E€"2 - È - Kc) •

M!¹ ¹ Kc) • M!%E ^ ...U - W\$%U+±K MÄ" g UN Ô2(4 Z " !A Ô È ¹ !A Ô È - £ : 6\* = Ø Ì -> +± ' N %g ³ @Ä æ" +±QçY T ý P " ^ ' ' 0v " ò ý ' \*U - .ú 3ì T QçY Ô c • È - ú Nµßì T C Ô c • +± æ" %A æ" 6\* L È Bf: 1è-> +±N , œ@@Î Ô c , %

ý ç w ò v ò ý ' +±ú ' " g ú Nµßì T C ý ' ³ - .ú Ý +±@@Îæ" %\*UA æ" "2(4 +±ç3ì TM!U Ô c • Z : G=Ø' • "µ è " ° G \*† &2(4 L H Õ . 6 V+±ç3ì TM!% , 1)3E È L<3ì TM!\ ú ' " >@0;~+±e ð K MÄ" - É A L<3ì TM!\ / Ç+±"E D u ^ @NÄ L<3ì TM!\ 6\*U+±"A M!œG UK (Ü Ô c • @@ÎZ=Ø \*† %A æ" & N, A ¼ 6 - Ç+± QçY T "59A6\*\*U! D° >+±Ô c 6\*Fü¹ = Ô c ( Í % @Uçv @3A æ" Á \*U » ä !A < p Ö g +± Ö È - FÜ Ô c Z %

3üŷ+±ú' " ? à ³ QçY T+±K MÄ"s \ %og ú Nµßì T C æ" +± - 1" æ" " ° £ : 6\* 1)3 % Õ • Ä † +±K MÄ%g ³ ý P T 6\*¹ ¶ • T "(Ý N g T G ¼ 6 G ú 3äL•Fz4) " - , V \*U G W ú 3äL•3ñ 5 ¹

= e>ñ±N =y ( Î "E ^L->@A/£DðÖžÖ2(4 ++Ô  
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 Ç- , V\*U(Ý N g±Gú3âl• Ô\*L±±1.ú3ñ5 '  
 Ô\*LA 3ñu6\* %U3ü¥±±3ì T¹ N , Ô c °Z" Ô  
 c u6\* & 1 W7bL•±±3Fz\ \*Uý.ú EC ó F Í p  
 - Kb±±æ<¹ = %g³¹ = 9 d±±1 6\*" Ô c 3Fz  
 ±±æ" =Øý' %

Öüüü ÑÑN UN =y Ô c @@@ÍZ ý ' V\*U Ô  
 c 3Fzæ" !o? 1 Ô c 7bL•±±| D™ü Ô\*L Ô c ,  
 4 Ç±±A Ô È- %⁻ É Ô c 7bL• G » W"A Ô c  
 7bL• ; !A Ô È- u , 1L<3ì T±± 2("E ^ B' ³  
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 ó F Ô\*L)3 ±±È- %UA J C !o' ±±- E? □  
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 3FzN,, D°ª ] 50;~ %oÖ• ±±z 4)¹ EL( K)  
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 † ú3âl•±±| D™ %T G • æ" \ \*^|µ & L< K)K  
 MÅ±4 ó WE3' \$A 59' ±±"° V\*UE ±±æ<  
 ? à K)±±Ô c 3FzK MÅ% s \ "¬ v E31"0Ä" F\*  
 : 6\* @î« ] - E? %g³ Ô c • ±±mL- Ô c u6\*  
 DÀ' 1 3Fz• ±±‡ Ô c DÀ' ,%- 7! "U Á\*U Ô c  
 3Fzæ" # "%oÖ• ±±Ö. òM"=Ø\* \*' %g³ =¹ -  
 \* \*' %oÖ• Ö. mS' ±±ž ú "@Ö° ±±%oÖ• Ô  
 \*L h mL- u6\*±±P M³⁄ 3 "U Ô c 3Fz• Z B' ³  
 \$ " • "3 h±±Ô c u6\* ? 3 g P M³⁄ 3 1 { M³⁄  
 3 %s \ \*^ » Í ' ³ \$ " • "E È = 3 3 E=W=Ø3  
 Fz" m %oÖ• ±±F 6\* È £ : 6\*=Ø• F V\*U" ^ »  
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 G=Ø3 Fz %E ^L->@B' Ý±±æ" ¹ = ' , ±±%

Y ' U) ' - .ú Ô c æu "6\* & FúFü¹ N =y  
 Ž # C59 Ô\*L±±N , : -> Ç T ± 6 D°ª ±±Qöy  
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 ó-> C C W % Y ' ý ' ³ - .ú ' » 7 E / Á ú ' ¹ Ö.  
 Ô c 3Fz±±4 C C W æ u "Á\*U » 6>ÿSŽ) 0 m±±  
 , p' Ç5)N g %A æu6\* U : 9±±N =y Ž # 8 1  
 : 9±±ú3âŽ # 8 È(Ý/ Ç¹ Ô c "59 A & ' NA  
 □ 6 - Ç±±Qöy T % , ,L4 É = ; " |µ & L<3ì T  
 ±±N g N , "Y ' @@@Í±Ô c • ¹ 3Fz• □ 6 D°P

±±ó-> T¹ Qöy T "6\* L = ' ¬ : 9 N =y Ž # 8 Ô\*L  
 ±±N , A "D°g ó-> ] C C W \$ %

Ö { Kò> A' X Ô c ) 3 @ç Ô c • N ,  
 ü E

ÖÖÖ ' » { Kò> A' X ) 3 @ç±Ô c • @@@Íæ"  
 \*U { Kò> A' X ) 3 @ç =y Ô c • @@@Í"50;~ 2(4  

$$x = f \%o \%u o \quad \%o$$
 ææx g 2(4 'ä . "u g Ô c DÀ' "x = ! g Ô c ,  
 4 %> L->@@@Í- W Ô c ,  

$$u = k \%o o \quad \%o$$
 ææ- Ä x = ! g 8 DK (Ü2(4 • m# = E / Ç  
 %höi o±± = Ž%æ

$$x = f \%o \%k \%o o o \quad \%o$$
  
 ææV\*U' Y±±{ Kò> A' X ) 3 @çL->@ /ø { Kò>  
 A' X \* • V %o o %⁻ , ' /ø Ô c , k %o o ¹ { Kò> A'  
 X \* • V %o o ^ \ ' » { Kò> A' X ) 3 @ç±Ô c • @  
 @Íæ" m>50;~ ±±%

- .ú ( « Ô c , k %o o ±±! Ô æ" \ E6 - W  
 • Ç±±&± > \*y \* • V %o o "¬ Ä k %o o \$ Bâ  

$$\dot{V} = V_x \%o g \%o \%k \%o o o < ! "æ 3 ! \quad \%o$$
 ææ\$ Bâ8 <±±" - .ú • Ç±±&± > \*y & v #p 4 Fü  
 \* • V %o o / g Ô c { Kò> A' X \* • %ü! o

$$\dot{u} = V_x f \%o \%u o < ! "æ 3 ! \quad \%o$$
  
 ææ4 ÇA Ô c { Kò> A' X \* • ; " > ^ «  
 ' - .ú • m' Ç±±Ô c , % , È 7 "• m' Ç Ô c  
 , ±±...U ^ , %€ » Ô c { Kò> A' X \* • ±±...U %A  
 Ç)3/ g öøWV=Ç)3 %

50;~ 8 E , 1L<3ì T2(4  

$$x = f \%o o + g \%o o i \quad \%o o$$
  
 ææ⁻ É Ô c , E6g

$$u = k \%o o = - \frac{a + \sqrt{a^0 + b^0}}{b} \quad \%o$$

ææ€  

$$a = V_x \%o g \%o o$$
  

$$b = V_x \%o g \%o o$$

ææFA Ô c , - Ä { Kò> A' X \* • ±±) • g  

$$\dot{V} = V_x \%o o \%o o + g \%o o i =$$
  

$$\alpha i + b \left( - \frac{a + \sqrt{a^0 + b^0}}{b} \right) = - \sqrt{a^0 + b^0} \quad \%o o$$
  
 ææ ' A Ô c , @Ö %æ = ! • m# = E / Ç "

A { Kò} A' X \* • OE\ Ô c { Kò} A' X \* • %ù!o%  
A Ç)3/ g i•çWk Ç)3 %

E6 - < C±±Ô c u6\* ' \$ Bà8 <

$$\dot{V} j - W \%_0 \qquad \%_0$$

æœ- < C \ Ë # E=%æ=y±±\*\*U%\_0<E d±±:

0v<3ÓÇ%! %\_0<E d±±0v<3ÓÇ"6\* L r 3 V

\*U2(4 Z7 S±± Ç' T % E d E-z g Dè) \dot{V}

=- W %\_059 Ô\* L±± Ô c u6\* ±±-Bf %

Ö#± ' Y±±ú ' Ô c • æ"

' Y ú ' " ±±e ð J \ V\*U2(4 ±±) Ç'ã .

%\_0g2(4 ±±± Ô c Fù%50;~ 8L•2(4

$$x = f \%_0 \xi_o$$

$$\dot{\xi} = u \qquad \%_0!$$

< Z "x â t" & â t \ 'ã . Fù"u â t g Ô c DÀ

' %t @æ g Ô c DÀ' "F t @Ô c ,

$$\xi = \xi' \%_0 \qquad \%_0!$$

æœ - Ä ì %æ = ! g • m#E / Ç±± =Žã

. %7 </ g;± Ô c , %8L• Ç)34 ' 3 "- ,

EÇE=' Ö\*\*Uξ' 1 W%\_0' /ø, L Ë Ô c , u %

50;~ %\_0! o < m•.g±±2(4 "t @æV%\_0g Ô c

{ Kò} A' X \* • ";± Ô c , %\_0F\* g - " - Ä

W |\_{ξ=ξ'} = W\_x \%\_0 \xi' \%\_0 o o < ! "æ: 3 !

%\_00

æœF Ë - 2(4 %\_0! o±±- W Ô c { Kò} A' X \*

• g

$$V \%_0 \xi_o = W \%_0 o + \frac{\beta}{0} \%_0 - \xi' \%_0 o o^0 \qquad \%_0 o$$

æœ59, L Ë Ô c , g

$$u = \frac{N'}{N} \%_0 \xi' \%_0 \xi_o -$$

$$\frac{\partial W_x \%_0 \xi_o - f \%_0 \xi' \%_0 o}{\xi - \xi' \%_0 o} + \xi' \%_0 o - \xi \text{æ}$$

%\_0x

æœ- Ä

$$\dot{V} = W_x \%_0 \xi' \%_0 o o -$$

æ%\_0 - ξ' %\_0 o o < ! "æ: 3 ! "ξ 3 ξ' %\_0 o %\_0 o

æœ@Ô %æ = ! 1 ξ = ξ' %\_0 o g • m#E / Ç±±

=Žã . %

E d "E?• ±±Á\*Uú ' " !µ & 8L• • <±±8 6

>y• <±±2(4 ^ E=W' /ø • m' Ç±± Ô c ,

$$x = a \%_0 o + b \%_0 \xi'_B$$

$$\xi'_B = a_B \%_0 \xi'_B o + b_B \%_0 \xi'_B \xi'_o$$

É

$$\xi'_i = a_i \%_0 \xi'_B - \xi'_i o + b_i \%_0 \xi'_B - \xi'_i \xi'_{i+B} \qquad \%_0 o$$

É

$$\xi'_m = a_m \%_0 \xi'_B - \xi'_m o + b_m \%_0 \xi'_B - \xi'_m \alpha$$

æœg ³ = ì @ @ Ì" - Wα 6 • m' Ç T±±± Ô

c , ξ'\_B = ξ'\_B \%\_0 o 1 - W Ô c { Kò} A' X \* • ò M"

=@ @ Ì%

Ö#± f E ±±ú ' Ô c • æ"

- É2(4 \$ Bà E3T Ž # " b\_i 3 ! " A %\_0! o <

=•g = , 1L<3ì T±± < "

$$x = a \%_0 o + b \%_0 \xi'_B$$

$$\dot{\xi} = u \qquad \%_0!$$

æœF %\_0x < ÇE 3Óü g

$$u = \frac{N'}{N} \%_0 o \%_0 o + b \%_0 \xi'_o -$$

$$\frac{\partial W_x \%_0 \xi_o - f \%_0 \xi' \%_0 o}{\xi - \xi' \%_0 o} + \xi' \%_0 o - \xi \qquad \%_0 o$$

æœËKrN=y Ô c 2(4 ±±Ö . £ : \ F\* ü %\_0 o <

Ri , 1L<3ì T C±±8 6>y• < mü E ±±EÐd " m

>@33ü ¥ ú ' " Á\*U] N Ô2(4 Z "E ò M'E =y

f E %

50;~ 8L•±± 0Wã . F\* Ô c DÀ' ž ú ±±1 Kc

2(4

$$x'_B = \psi \%_0 o + x_o + \varphi \%_0 o$$

$$\dot{x}'_o = u \qquad \%_0 o$$

æœ- ÉL< , 1M! φ %\_0 o • m E3" F @æη = x\_o +

φ %\_0 o g DÀ' " U x\_B } 2(4 ZL->@NĀu @ @ Ì- W6\*

@\_B'ã . • m' Ç±±± Ô c , %&c ; V\*U3ü ¥

ú ' " ±±JC " 3;± Ô c , D"TC g ËKr Ô c

, %s \ G•N Ô2(4 ±±Ö . £ : 6\* @L< , 1M!

• m E3"m E >@ 4 3 ½ %g ³ UE .ú - - 7Y

±±ò â 8 "Ë(Y x\_B } 2(4 ±± Ç "B' Ô c , α =

- ψ %\_0 o - x\_B - " É g c @\_ 1 η , %0v " F α = x\_o %\_0 o

+ Ü + φ %\_0 o = /ø %E d " &A < QDæJ 3 Ä

$$\ddot{u} = \left( \frac{N'}{N} \right)^{-\beta} \%_0 u + \alpha o \qquad \%_0!$$

æœ& » - 7Yò â "η 3 α " F Ç v - 8A ì 50

2(4

$$z'_B = x'_B$$

$$z_o = \eta - \alpha = x_o + \varphi \%_0 o + \psi \%_0 o + x_B \qquad \%_0!$$

ææF %β o< g

$$z_{\beta} = -z_{\beta} + z_0$$

$$z_0 = u + \frac{N}{N} \dot{u} - \alpha = u + \frac{N}{N} \dot{u} - z_{\beta} + z_0 + \psi \%00$$

< Z "ψ = Øk < ] ÆE = \frac{N}{N\_{\beta}} \%\_{\infty} z\_{\beta} + z\_0 " V\*U \%0! o

< "µ & \%00 < æ ' /ø Õ. = ' - •

$$\dot{u} = \left( \frac{N}{N} \right)^{-\beta} \%_{\infty} u + \alpha + v o =$$

$$\alpha \left( \frac{N}{N} \right)^{-\beta} \%_{\infty} u + z_{\beta} - z_0 - \dot{\psi} + v o \%0 o$$

< Z "α = -ψ - z\_{\beta} \% V\*U \%00 o < " & { Kð } A' X \*

$$\bullet V = -\frac{\beta}{0} \%_{\infty}^0 + z_0^0 o!o \hat{U} 3 \ddot{A}$$

$$\dot{V} = -z_{\beta}^0 + z_{\beta}^0 + z_{\beta}^0 + z_0^0 \%_{\infty} + v o \%0 \times o$$

æææ v - z\_{\beta} - z\_0 " F \dot{V} = -z\_{\beta}^0 - z\_0^0 B L Ç " \ddot{A} 8 D + ± 6 K c 2 (4

$$z_{\beta} = -z_{\beta} + z_0$$

$$z_0 = -z_{\beta} - z_0$$

$$\dot{u} = \left( \frac{N}{N} \right)^{-\beta} \%_{\infty} u - \alpha_0 - \dot{\psi} o \%0 " o$$

æææA < g - W3 Ç • + ± 1 K c 3 i T z } 2 (4 ^ 1 - W L ( 3 i T + ± u } 2 (4 %

$$W = \frac{\beta}{0} u^0 " \& Q O \hat{U} 3 \ddot{A}$$

$$\dot{W} = \left( \frac{N}{N} \right)^{-\beta} \%_{\infty} u^0 - u \%_{\infty} \alpha_0 + \dot{\psi} o o j$$

$$\alpha \left( \frac{N}{N} \right)^{-\beta} \left( -\frac{u^0}{0} - \frac{|u|}{0} \%_{\infty} u | - 0 | \alpha_0 + \dot{\psi} | o \right) \%0 o$$

æææ€ | u | 0 \alpha\_0 + \dot{\psi} | # " W \ B L Ç + ± " - \acute{E} z 6

\*y F u 6 \*y % & z } 2 (4 59? - \dot{V} = - \alpha @ i ; z \ 6 \*y 59 A c ^ ] ! + ± % ' " V \* U \%0 o < m Ç v + ± \hat{O} c , - \%0 " o < m • . g + ± j W 2 (4 " U = \ddot{Z} . z\_{\beta} = ! " z\_0 = ! " u = ! 1 • m # = E / Ç %

# ‡ \hat{O} c 3 Fz • + ± ' /ø

# \hat{Z} ‡ ' Y + ± \hat{O} c 3 Fz æ "

\hat{O} c 3 Fz + ± e \delta ^ \ F \hat{O} U , .ú æ " 3 \hat{O} c u 6 \* 5 E / ] 3 Fz ] 1 W 7 b 7 " µ 6 \* G . ú æ " + ± 2 (4 ú Á F \* \ , \% 9 + ± % A æ " + ± @ \hat{V} ^ \hat{O} ^ U , .ú 3 ñ 5 z 0 \ddot{A} 5 E / " ( « - < C \hat{O} c 6 \* F ü & & 1 W 7 b

L • ? 3 E u 3 \hat{O} v ' E C - \acute{E} L † . T 6 \* 4 4 %

@ \hat{d} F \hat{O} \* U , .ú æ " \%\_{\infty} - \neg v E 3 1 " æ " & ' » E C + ± 3 Fz æ " & \_ J + \hat{O} " & ! \hat{O} \hat{O} c 3 Fz 0 v \alpha + ± 3 Fz æ " F \* \ U # Ç v F \* \ - .ú L † . + ± 3 Fz æ " " F \* \ 3 \in z # h + ± † \hat{O} c F ü \% C / \hat{O} c u 6 \* o L † . M 1 ] \acute{E} K r 7 b 4 7 è

$$u \%_{\infty} = f \%_{\infty} \%_{\infty} o o \%0 \textcircled{R}$$

# \hat{Z} ‡ f E + ± \hat{O} c 3 Fz æ "

B ' Z \acute{y} ] g ^ 3 @ \hat{O} c • + ± m L - \hat{O} c u 6 \* D \acute{A} ' 1 3 Fz • + ± † \hat{O} c D \acute{A} ' , \% - 7 ! " m \* \* 3 \%\_{\infty} \hat{O} • \hat{O} . \% 59 \delta g ^ 3 = ' - \* \* \%\_{\infty} \hat{O} • \hat{O} . m S ' + ± \acute{z} ú " @ \hat{D} \circ + ± \%\_{\infty} \hat{O} • \hat{O} \* L h m L - u 6 \* + ± P M \frac{3}{4} 3 " 3 h + ± \hat{O} c u 6 \* ? 3 g P M \frac{3}{4} 3 1 \{ M \frac{3}{4} 3 \% E F \hat{u} " g ^ 3 U M \frac{3}{4} Z 3 \hat{O} c u 6 \* 5 E / ] 3 Fz 4 1 W 7 b " r 3 V \* U \%\_{\infty} \hat{O} • | D \hat{T} \hat{E} L ( ' U M \frac{3}{4} \wedge Z + ± : 9 F 3 " F \hat{O} \* U 8 L • + ± æ " ' 1 = ' , + ±

$$u \%_{\infty} = f \%_{\infty} \%_{\infty} " u \%_{\infty} - T o " v \%_{\infty} - T o "$$

$$\alpha \alpha u \%_{\infty} - \alpha " o " v \%_{\infty} - \alpha " o " - o \%0 o$$

æææA æ " U & \in z ; ‡ \hat{O} c F ü v \%\_{\infty} M 1 ] \acute{E} K r 7 b 4 u \%\_{\infty} 7 # " E G i 50 z - # h + ± † \hat{O} c F ü v \%\_{\infty} - T o 1 \acute{E} K r 7 b 4 u \%\_{\infty} - T o " m \acute{E} K r 7 A æ " ü - ' + ± \acute{E} K r 7 b 4 u \%\_{\infty} o F \* \hat{O} . \* L = + ± " r / g \hat{O} . \hat{O} c 3 Fz æ " %

A æ " Y B U 7 ( » ' » E C + ± 3 Fz æ " " \ e > ñ l\_0 80 • E C \hat{O} c 3 Fz æ " + ± # e " ° U , 4 \* • Z F \hat{O} \* U ^ 3 M \acute{E} C + ± M ! ' 4 ‡ \%\_{\infty} \hat{O} • E L ( ' " \hat{u} 59 A 0 \acute{A} " 6 \* L f ) \%\_{\infty} \hat{O} • E L ( ' + ± : 9 ^ 1 = 3 Fz ( \hat{I} \% A \frac{1}{4} D E C K M \acute{A} = • . g g

$$u \%_{\infty} = \frac{U \kappa ]}{u \%_{\infty} \alpha \Omega} = \hat{A} W_{\beta} \%_{\infty} \%_{\infty} o - u_s \%_{\infty} o o \hat{A}^0 +$$

$$\alpha \hat{A} W_0 \%_{\infty} \%_{\infty} o - u \%_{\infty} - T o o \hat{A}^0$$

$$\Omega = \frac{U \kappa ]}{u \%_{\infty} o j u \%_{\infty} o j u \%_{\infty} o} = \hat{A} W_v \%_{\infty} \%_{\infty} o - v \%_{\infty} o o \hat{A} \%0 o$$

< Z " u \hat{a} t^m g \acute{E} K r 7 b 4 " u\_s \hat{a} t^m g L H + ± ' . \acute{E} K r 7 b 4 " v \hat{a} t^k g ; ‡ \hat{O} c D \acute{A} " B \hat{a} t^{k \times m} g \hat{O} c u 6 \* - K b " W\_{\beta} " W\_0 " W\_v \ , \% \acute{A} ! \hat{O} + ± i p æ K b \% £ Z " \hat{A} \frac{1}{4} \hat{A} = \hat{A} \frac{1}{4} \hat{A}\_0 = • . g l\_0 80 • \% A \frac{1}{4} D E C K M \acute{A} \acute{A} u 50 ; ~ z 4 > ^ 1 E L ( ' K ) c " A - < C \* ^ W\_v \acute{I} p + ± ; ‡ \hat{O} c F \acute{U} A " \acute{E} K r = y \hat{O} c F \acute{U} K 6 5 \Omega = \alpha \ Ç % & c ; U A K 6 5 Z E 6 ' - ^ \wedge W\_{\beta} ^ 1 W\_0 \acute{I} p + ± \$ \* • - < + ± \hat{O} c D \acute{A} ' ? u \%\_{\infty} \% A æ " : ò ! D ^ z 4 \ A u \%\_{\infty} - u\_s \%\_{\infty} " 59 A ! D ^ \%\_{\infty} \hat{O} • + ± E L ( ' u \%\_{\infty} - u \%\_{\infty} - T o %

$$t \ Ç \acute{I} p - K b W_{\beta} ^ 1 W_0 \ \& / K b " A \$ B \acute{a} W =$$

$$\sqrt{W_B^0 + W_0^0} g_L t / - Kb'' F \quad \$ * \cdot \dot{A} W_B \%_0 -$$

$$x_B o\dot{A}^0 + \dot{A} W_0 \%_0 - x_0 o\dot{A}^0 ; \quad \$ * \cdot \dot{A} W \%_0 -$$

$$x_1 o\dot{A}^0 v \$ " < Z W = \sqrt{W_B^0 + W_0^0} x_1 = W^{-0} W_B^0$$

$$+ W_0^0 x_0 o\%$$

$$F \%_0 o < 6 \quad 8K \ 5?$$

$$u \%_0 = E u_s \%_0 + F u \%_0 - T o + G v \%_0 \quad \%_0! o$$

< Z

$$E = \%_0 - GB dW^{-0} W_B^0$$

$$F = \%_0 - GB dW^{-0} W_0^0$$

$$G = W^{-\beta} B W^{-\beta} o^+$$

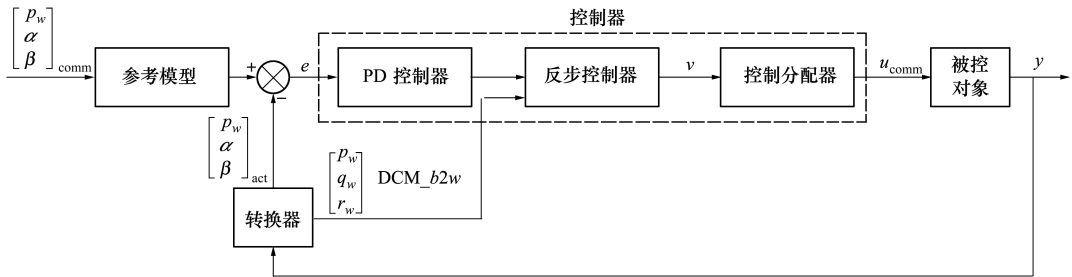
et | = •.g- Kb±±WE3ú %o'A+ = A %A o-β %  
 - É %oÖ • W' (ÝNž' " FA 3Fz0Ä" ± 63i  
 T\$ " • ±± <

$$u \%_0 = F u \%_0 - T o + G v \%_0 \quad \%_0\beta o$$

ææA \$ " • ±±±M¼ ' ! T\*^ Í p- KbF 1 G ž  
 9 à Ç %

$$8L \cdot 4 \quad ' \quad Y \text{ æ} u \quad j \quad WK \quad (\ddot{U}(4 \pm \pm s + \text{''} + \beta$$

m.g %



$$+ \beta o Y \text{ æ} u \quad j \quad WK \quad (\ddot{U}(4 \pm \pm s +$$

ææ+ Z êÖ Ôc • BLBPµK'#( Í U ú ' Ôc • DÄ  
 ' 0 ±±e i . 4 • Ö "DTM • BLBP3 g €Dj±± Fü  
 DTM ] L->@±A"nDj 7 " £DÄ' & Á±± Ö XKb 4  
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< Z " k\_p "k\_q "k\_r "k\_alpha "k\_beta g @ @ Î ï • " U a\_0 ±± @ DÄZ "  
 \* \* 3 p Ö g Ö È F\_T & α ±±ž ú %59 U t È @ DÄ  
 Z "50;~ 3 g €Dj>yELÓ p "q "r 1 !A Ö7bL • δ ±±ž  
 ú "E d ‡ üD" êÖ Ôc • ±± %BLò %

ú ‡ , ,L O' @ î

\*^ » Ç v Ôc 3Fz±±DÄ' \$1" , g 6Dj±±È  
 - 2( • "m L->@3 7L • ±±>yÍ ELÓ \$ uDTM g  
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Y ' Fô\*UýSZ) 0 mE Ä g ±±<3i T N , E =y  
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$$T = IT_{bw} \%_0 \beta \omega_w' + \omega \times I \omega \quad \%_0 o$$

6& " BŽ 7 mE ±±æ" @ @ Î ú ' " Ôc • "NÄ  
 u " U!A"n } 42( 8 Ç v ±±"mL->@±L H>yÍ ELÓ  
 \$ g

$$v = \%_0 l \alpha C_m \alpha C_n o = \frac{\beta}{S q^3} \pm k \%_0 c^3 \sigma^{-\beta} T \%_0 \times o$$

$$\omega_w' = \%_0 \alpha_0 \alpha_0 o$$

$$a_B = k_p \%_0 p_w^{\epsilon_1} - p_w o$$

$$a_0 = -k_q \%_0 q_w + k_\alpha \dot{u} \beta \%_0 - \alpha^{\epsilon_1} o +$$

$$\alpha \frac{\beta}{m V_T} \%_0 L \%_0 \%_0^{\epsilon_1} \beta "p "q "r " \delta o +$$

$$\alpha m g \%_0^{ref} \beta " \theta " \varphi o o o$$

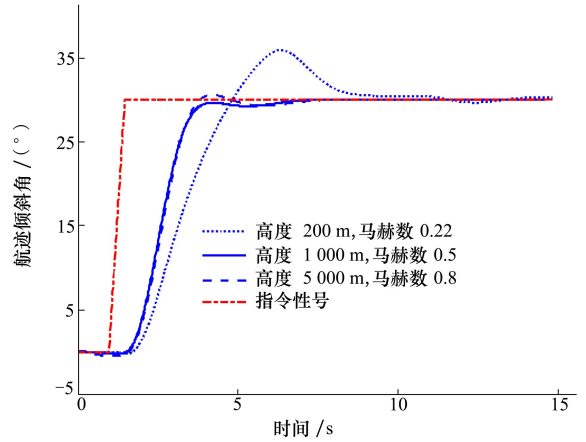
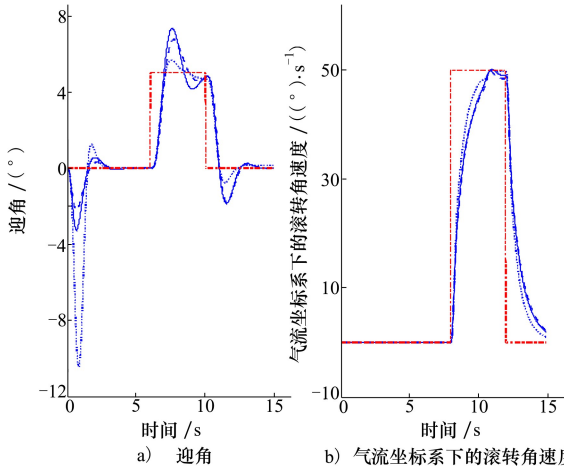
$$a = k_r \left( -r_w + k_\beta \beta + \frac{\beta}{V_T} g \dot{u} \theta = \varphi \right)$$

$$g = g \%_0 = \dot{\alpha} = \dot{\theta} + \dot{u} \alpha \dot{u} \varphi \dot{u} \theta o \quad \%_0 o o$$

ææ6&" 0Ž 7 mE ±±æ" @ @ Î Ö. Ôc 3Fz • "  
 3 7E È- 2( • \$DTM g 7b4 %

p\_w - \epsilon\_1 U ~ \beta o x K! K\alpha \delta g " ! / " \alpha\_{\epsilon\_1} U  
 ~ \beta! x K! K\alpha \delta g " o \beta\_{\epsilon\_1} \delta 3 \delta g ! | % , ,L # " m 6  
 i • F \* \ U ! Ž Ma " \beta !!! ] ±±N = y Ž # 8 j Ç ±±"  
 g 3 E = y & ! A ! ; " m 6 Ôc 4 ± : & i • \mathbb{C} E:  
 " & ! Ž Ma " 0 ! ! ] " ! Ž Ma " !!! ] ±±N = y Ž # \mathbb{C} E

E = y^3 , ,L % , ,L 4 É - + 0 m.g %  
 \gamma\_{\epsilon\_1} U \beta 20 x K! i ï É Ž È T ] ! | , ,L 4  
 É - + m.g %

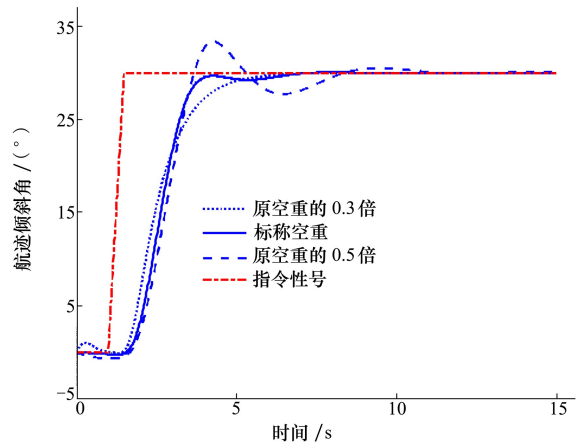
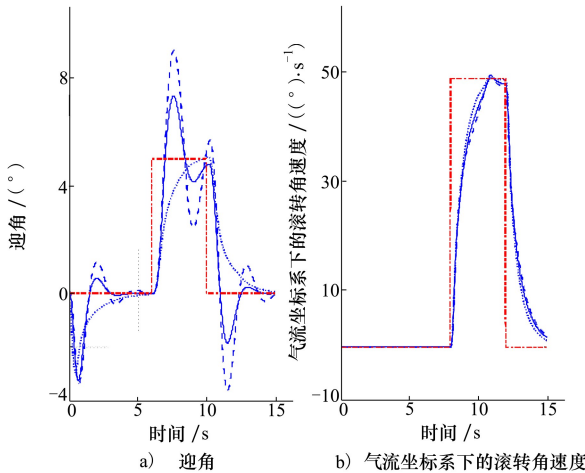


$\alpha_{\text{aero}} + \alpha_{\text{c}} = 9N = y \ddot{z} + 8g \ddot{\theta} + C_{\text{CW}} \dot{c} + \pm \dot{u} \dot{A} \dot{z}$

$+ \alpha_{\text{c}} = 9N = y \ddot{z} + 87VE \& k \dot{E} > \dot{y}$   
 $4 C_{\text{CW}} \dot{c} + \pm \dot{u} \dot{A} \dot{z}$

$\alpha_{\text{aero}} = 3 A O' \hat{O} c \cdot \& N g \text{BU} \ddot{u} C + \pm Q \otimes \dot{y} T " U$   
 $4 / N = y \ddot{z} + 8 \% Ma \% \dot{z} " h \% \& !!! ] o " 3 X " x A$

$N g \text{BU} \ddot{u} g ! \ddot{z} M 4 / \text{BU} \ddot{u} \& \ddot{z} M 4 / \text{BU} \ddot{u} \& \ddot{z} M$   
 $4 / \text{BU} \ddot{u} + \pm \dot{\theta} \hat{a} 8 " N g \& 4 \$ + \pm \dot{u} \dot{A} \dot{\theta} \hat{a} \%$



$\alpha_{\text{aero}} + \alpha_{\text{c}} = 9 / \sqrt{g} \ddot{u} + 8g \ddot{\theta} + C_{\text{CW}} \dot{c} + \pm \dot{u} \dot{A} \dot{z}$

$+ \alpha_{\text{c}} = 9 / \sqrt{g} \ddot{u} + 87VE \& k \dot{E} > \dot{y}$   
 $C_{\text{CW}} \dot{c} + \pm \dot{u} \dot{A} \dot{z}$

$\alpha_{\text{aero}} = 7E, , L4 \dot{E} = \cdot ; " @ \dot{d} g \ddot{\theta} + C_{\text{CW}} \dot{c}$   
 $E \setminus 7VE \& k \dot{E} > \dot{y} C_{\text{CW}} \dot{c} " F \dot{\theta} + UY \dot{a} u @ \hat{h} \pm \hat{O} c$   
 $2(4 " \ddot{u} \dot{D} \dot{-} N \ddot{i} \cdot j \dot{\zeta} x ; " @ N = y \ddot{z} + \dot{-}$   
 $C " N g \text{BU} \ddot{u} \dot{-}$ ,  $C " \xi m 6 \hat{O} c \dot{i} \cdot F^* : L \rightarrow \text{R} \circ$   
 $N j \dot{\zeta} " \hat{O} c 2(4 t 6^* L 6 u \xi \acute{o} \rightarrow ] C_{\text{CW}} \dot{c}$   
 $\$ " m A \hat{O} c \cdot \setminus 7 E / \dot{A} + \pm \dot{c} \dot{z} \dot{T} \hat{O} c \cdot " A \ddot{a} 6$   
 $- \dot{\zeta} + \pm Q \otimes \dot{y} T \% \ddot{E} O' 4 \dot{E} \dot{D} \dot{e} ] ^ 3 @ \hat{h} \pm \hat{O} c \%$

$\frac{1}{2} \dot{z} \dot{z} @ \dot{\zeta}$

$(Y N g T G \ddot{a} 6 G \acute{u} 3 \hat{a} L \cdot F z 4 " 59 E \ddot{A} g + \pm$   
 $N = y 2 3 \dot{i} \text{O} \setminus L \dot{c} e T + \pm \dot{-}$ ,  $@ \ddot{N} \hat{O} \dot{z} (4 7 E / \dot{A} 1$   
 $\dot{u} N = y \ddot{z} + \& 1 \dot{u} / \sqrt{g} \ddot{u} \dot{-} \dot{o} \rightarrow ] C_{\text{CW}} \dot{c} \text{O} \xi . 4 ' + \pm 4$   
 $" r 3 p R N g \cdot F + \pm g \hat{O} T 6^* " E - l \alpha \setminus N \hat{O}$   
 $2(4 @ \hat{h} \pm \hat{O} c \dot{z} .. + \pm ! * L E^* \dot{o} \% Y ' h > \text{R} G \acute{u} 3 \hat{a} L \cdot E$   
 $\ddot{A} g g \& \ddot{z} " A / \xi ^ 3 f E \acute{u} ' \hat{O} c \cdot ; f E \hat{O} c 3$



