## Scale Dependence of Branching in Arterial and Bronchial Trees

 $r_{1,2,3}$ ,  $r_{2,3,3}$ ,  $r_{1,2,3}$ ,  $r_{1,2,3}$ ,  $r_{1,3,3}$ ,  $r_{$ 

<sup>1</sup>I, ef. Re, each Eec. c, a dA, ed Ph., c, U e, ...f Ma. a d, C. ege Pa, Ma. a d 20742, USA <sup>2</sup>Deta e .f Ma he a c, U e, ...f Ma. a d, C. ege Pa, Ma. a d 20742, USA <sup>3</sup>Deta e .f Ph., c, a d Deta e .f Eec ca a d C. (e E g ee g, U e, ...f Ma. a d,

C. ege Pa , Ma . a d 20742, USA

<sup>4</sup>I, ef. Ph., ca Sc e ce a d Tech. g., U e, ...f Ma. a d, C. ege Pa, Ma. a d 20742, USA ( 2 r 2005), r 2 r 2006)

, **r**, **.**1.**r**, **.**1.**T**, **.**1.

 $\mathbf{f}_{i} \mathbf{r}_{i}, \dots, \mathbf{r}_{i}, \dots, \mathbf{r}_{i}, \mathbf{r}_{i}, \dots, \mathbf{r}_{i}, \mathbf{r}_{i}, \dots, \mathbf{r}_{i}, \dots,$  $\mathbf{f}_{\mathbf{r}} = \mathbf{f}_{\mathbf{r}} =$ . **f**  $(1, \dots, r, r, r, r) = (1, \dots, r, r, r, r)$ , <u>v</u>, r , f 1 , 🖌  $\underline{r}, \ \underline{r}, \ldots, \underline{$ r , **r**\_\_\_\_\_, **r**\_\_\_\_, **r**\_\_\_, **r**\_\_\_\_, **r**\_\_\_, **r**\_\_, **r**\_\_, **r**\_\_\_, **r**\_\_\_, **r**\_\_\_, **r**\_\_\_, **r**\_\_, **r**\_\_, **r**\_\_, **r**\_\_\_, **r**\_\_\_, **r**\_\_\_, **r**\_\_, **r**\_\_, **r**\_\_, **r**\_\_\_, **r**\_\_\_, **r**\_\_\_, **r**\_\_, **r**\_, **r**\_\_, **r**\_\_, **r**\_\_, **r**\_, **r**\_, **r**\_\_, **r**\_,  $\mathbf{r} \ldots \ldots \mathbf{r} \neq \mathbf{r} \mathbf{r} \cdots \mathbf{r} = \mathbf{v}_{\mathbf{v}} \cdots \mathbf{r} \mathbf{r} \mathbf{v}_{\mathbf{v}} \cdots \mathbf{r} \mathbf{r}$  $\mathbf{r}_{1} = \mathbf{r}_{1} + \mathbf{r}_{2} + \mathbf{r}_{2} + \mathbf{r}_{2} + \mathbf{r}_{2} + \mathbf{r}_{1} + \mathbf{r}_{2} + \mathbf{r}_{2}$ Ÿ. , where  $\mathbf{r}_{1}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{1}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{1}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{3}$  ,  $\mathbf{r}_{4}$  ,  $\mathbf{r}_{2}$  ,  $\mathbf{r}_{3}$  ,  $\mathbf{r}_{4}$  ,  $\mathbf{r}_{4}$  ,  $\mathbf{r}_{4}$  ,  $\mathbf{r}_{5}$  ,  $\mathbf{r}_{4}$  ,  $\mathbf{r}_{5}$  ,  $\mathbf{r}_{5}$ r

 $f' = \frac{1}{2}(1 + \alpha^{x})^{-2/x}$ . T  $f' = \frac{1}{2}$   $f = \frac{1}{2}(1 + \alpha^{x})^{-2/x}$ . T  $f' = \frac{1}{2}(1 + \alpha^{x})^{-2/x}$ 

$\cdots \cdots \cdots \cdot \mathbf{f} \cdots \cdots \cdots \cdots \cdots \cdots \cdot \mathbf{r} \cdots \cdots$
. r f r. ,
<b>f</b> . <b>r r r r r</b> .
rr
_/ <b>f</b> , <b>f f f</b>
r
, <b>r f r</b>
r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r,r, _r,
$\mathbf{r}_{1}$ $\mathbf{r}_{2}$ $\mathbf{f}_{1}$ $\mathbf{f}_{2}$
r v frf rr r
r

 $f_{1}$   $r_{1}$   $r_{2}$   $r_{3}$   $r_{4}$   $r_{5}$   $r_{5$