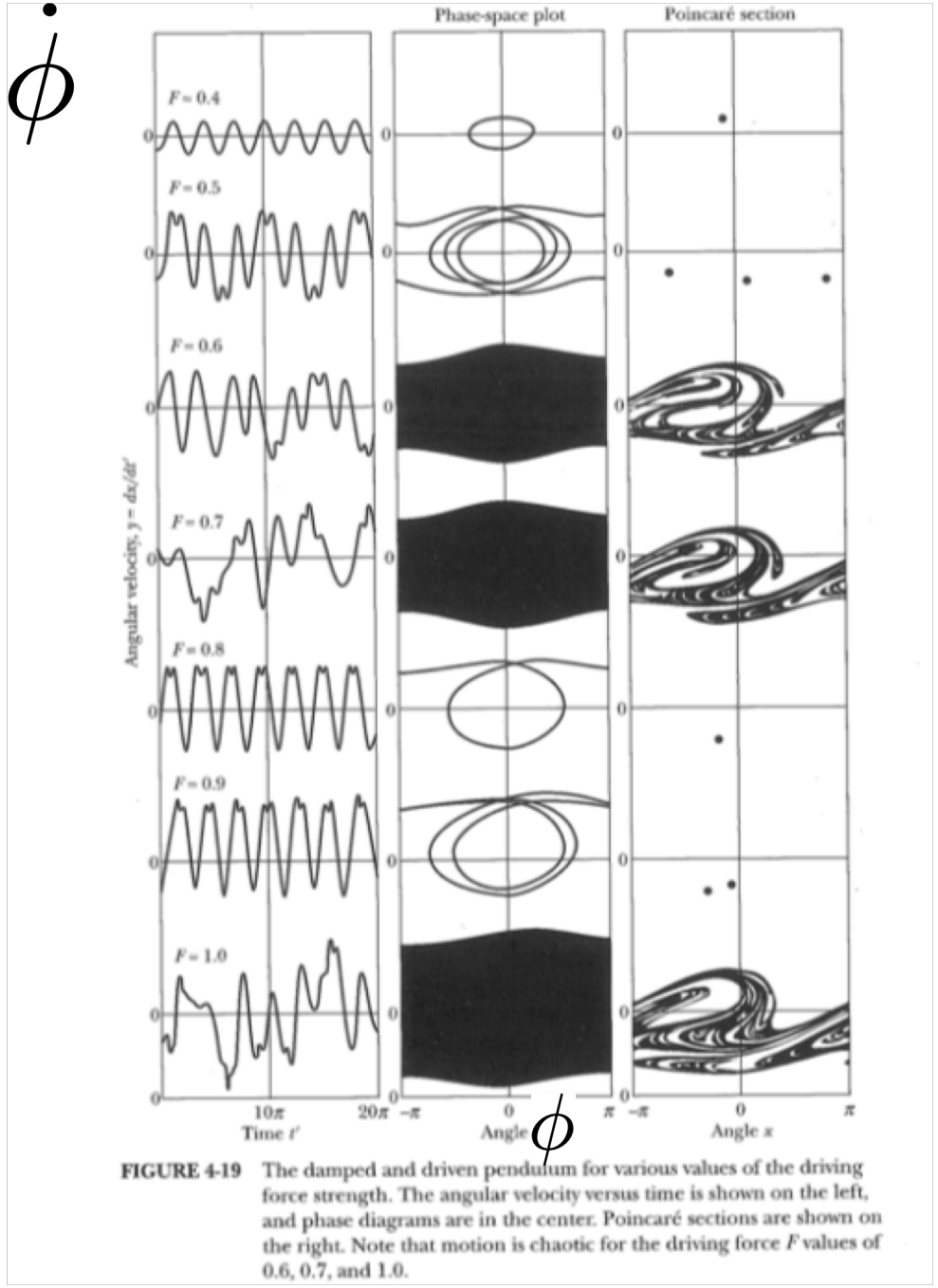

FIGURE 4-19 The damped and driven pendulum for various values of the driving force strength. The angular velocity versus time is shown on the left, and phase diagrams are in the center. Poincaré sections are shown on the right. Note that motion is chaotic for the driving force F values of 0.6, 0.7, and 1.0.

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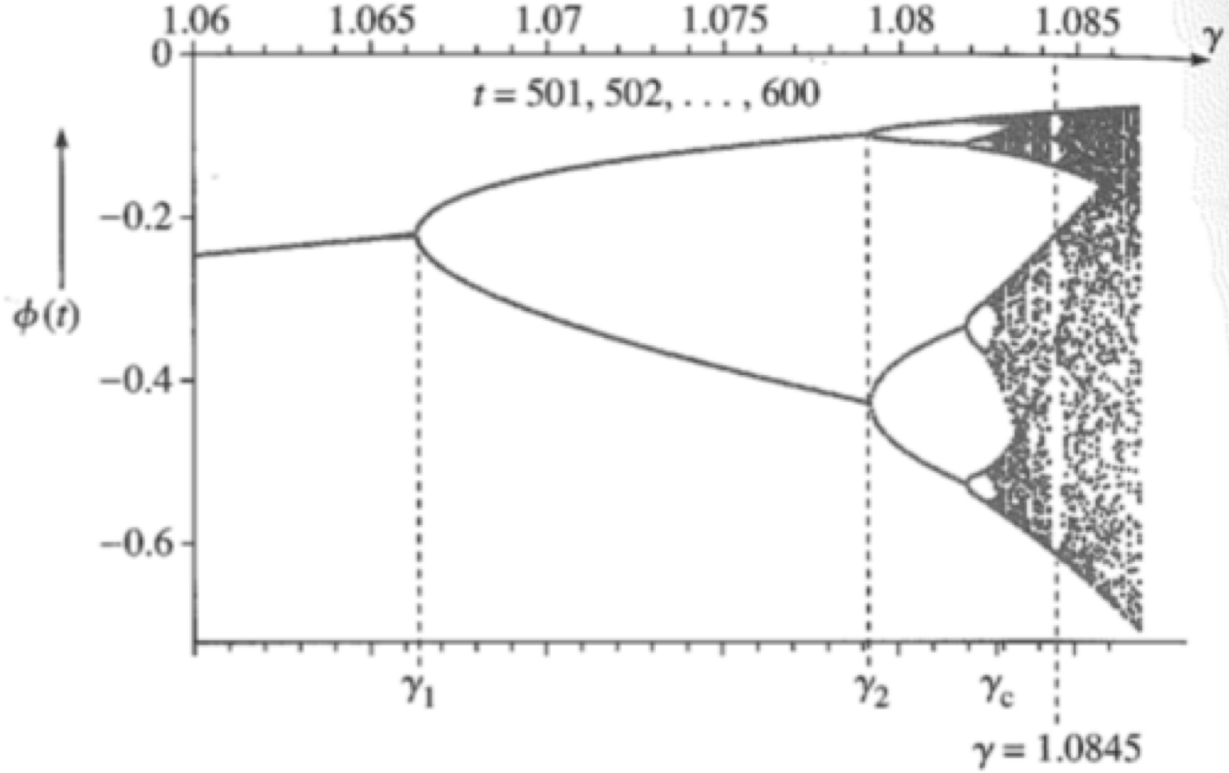
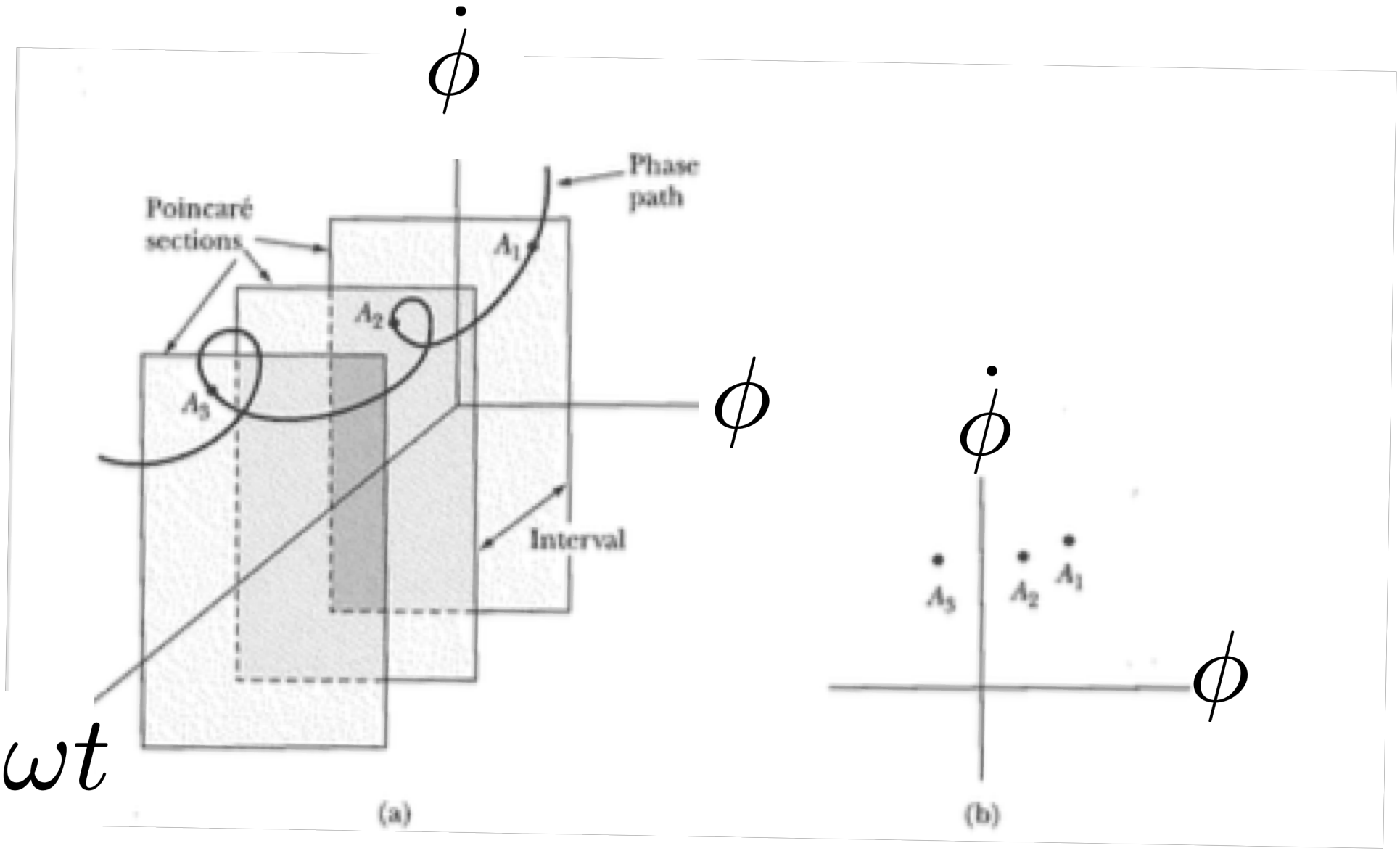


Figure 12.17 Bifurcation diagram for the driven damped pendulum for drive strengths $1.060 \leq \gamma \leq 1.087$. The period-doubling cascade is clearly visible: At $\gamma_1 = 1.0663$ the period changes from 1 to 2, and at $\gamma_2 = 1.0793$ from 2 to 4. The next bifurcation, from period 4 to 8, is easily seen at $\gamma_3 = 1.0821$, and that from 8 to 16 is just discernable at $\gamma_4 = 1.0827$. To the right of the critical value, $\gamma_c = 1.0829$, the motion is mostly chaotic, although at $\gamma = 1.0845$ you can just make out a brief interval of period-6 motion.

Taylor

Poincaré sections



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