

rapidly than exponentially, thereby accounting for the uniqueness of solutions.

In short, Professor Arnold is one of the truly great stars of mathematics, and in this outstanding text, he shares his knowledge and understanding with us.

REFERENCES

1. S. Bancroft, J. K. Hale and D. Sweet, *Alternative problems for nonlinear functional equations*, J. Differential Equations **4** (1968), 40–56.
2. N. Chafee and E. F. Infante, *A bifurcation problem for a nonlinear partial differential equation of parabolic type*, C.D.S. Tech. Rep. 74–5, Lefschetz Center for Dynamical Systems, Brown Univ., 1974.
3. N. Chafee, *Behavior of solutions leaving the neighborhood of a saddle point for a nonlinear evolution equation*, J. Math. Anal. Appl. **58** (1977), 312–325.
4. C. C. Conley and R. Easton, *Isolated invariant sets and isolating blocks*, Trans. Amer. Math. Soc. **158** (1971), 35–61.
5. R. Easton, *Regularization of vector fields by surgery*, J. Differential Equations **10** (1971) 92–99.
6. H. Furstenberg, *Ergodic behavior of diagonal measures and a theorem of Szemerédi on arithmetic progressions*, J. Analyse Math. **31** (1977), 204–256.
7. H. Furstenberg and B. Weiss, *Topological dynamics and combinatorial number theory*, J. Analyse Math. **34** (1978), 61–85.
8. H. Furstenberg and Y. Katznelson, *An ergodic Szemerédi theorem for commuting transformations*, J. Analyse Math. **34** (1978), 275–291.
9. J. K. Hale, *Dynamical systems and stability*, J. Math. Anal. Appl. **26** (1969), 39–59.
10. J. P. LaSalle, *An invariance principle in the theory of stability*, Int. Symp. on Diff. Eqs. and Dyn. Systems, J. K. Hale and J. P. LaSalle (eds.), Academic Press, New York, 1967, p. 277.
11. A. Liapunov, *Problème général de la stabilité du mouvement*, Ann. Sci. Toulouse **2** (1907), 203–474.
12. B. J. Matkowsky, *A simple nonlinear dynamic stability problem*, Bull. Amer. Math. Soc. **76** (1970), 620–625.
13. J. Moser, *Periodic orbits near an equilibrium and a theorem by A. Weinstein*, Comm. Pure Appl. Math. **29** (1976), 727–747.
14. C. C. Pugh, *On a theorem of P. Hartman*, Amer. J. Math. **91** (1969), 363–369.
15. J. Roels, *An extension to resonant case of Liapunov's theorem concerning the periodic solutions near a Hamiltonian equilibrium*, J. Differential Equations **9** (1971), 300–324.
16. _____, *Families of periodic solutions near a Hamiltonian equilibrium when the ratio of 2 eigenvalues is 3*, J. Differential Equations **10** (1971), 431–447.
17. D. S. Schmidt and D. Sweet, *A unifying theory in determining periodic families for Hamiltonian systems at resonance*, Tech. Rep. TR 73–3, Univ. of Maryland, 1973.
18. C. L. Siegel and J. Moser, *Lectures on celestial mechanics*, Springer-Verlag, New York, 1971.
19. A. Weinstein, *Lagrangian submanifolds and Hamiltonian systems*, Ann. Math. **98** (1973), 377–410.
20. _____, *Normal modes for nonlinear Hamiltonian systems*, Invent. Math. **20** (1973), 47–57.

MARTIN BRAUN

BULLETIN (New Series) OF THE
 AMERICAN MATHEMATICAL SOCIETY
 Volume 2, Number 3, May 1980
 © 1980 American Mathematical Society
 0002-9904/80/0000-0224/\$03.25

Methods of modern mathematical physics, vol. III, *Scattering theory*, by Michael Reed and Barry Simon, Academic Press, New York, 1979, xv + 463 pp., \$42.00.

Methods of modern mathematical physics, vol. IV, *Analysis of operators*, by