2. Virus population dynamics and immune memory
（ウイルスのポピュレーションダイナミクスと免疫記憶）

Martin A. Nowak
Institute for Advanced Study, Princeton, NJ 08540, USA

The recent development of potent anti-viral drugs has not only raised hopes for effective treatment of infections with the human immunodeficiency virus (HIV) or the hepatitis B virus (HBV), but has also led to important quantitative insights into viral dynamics in vivo. Interpretation of the experimental data depends upon mathematical models that describe the nonlinear interaction between virus and host cell populations. I will discuss the emerging understanding of virus population dynamics, the role of the immune memory in limiting virus abundance, and the dynamics of viral drug resistance. I will explore how mathematical models can help to devise treatment strategies for optimum control of HIV infection.