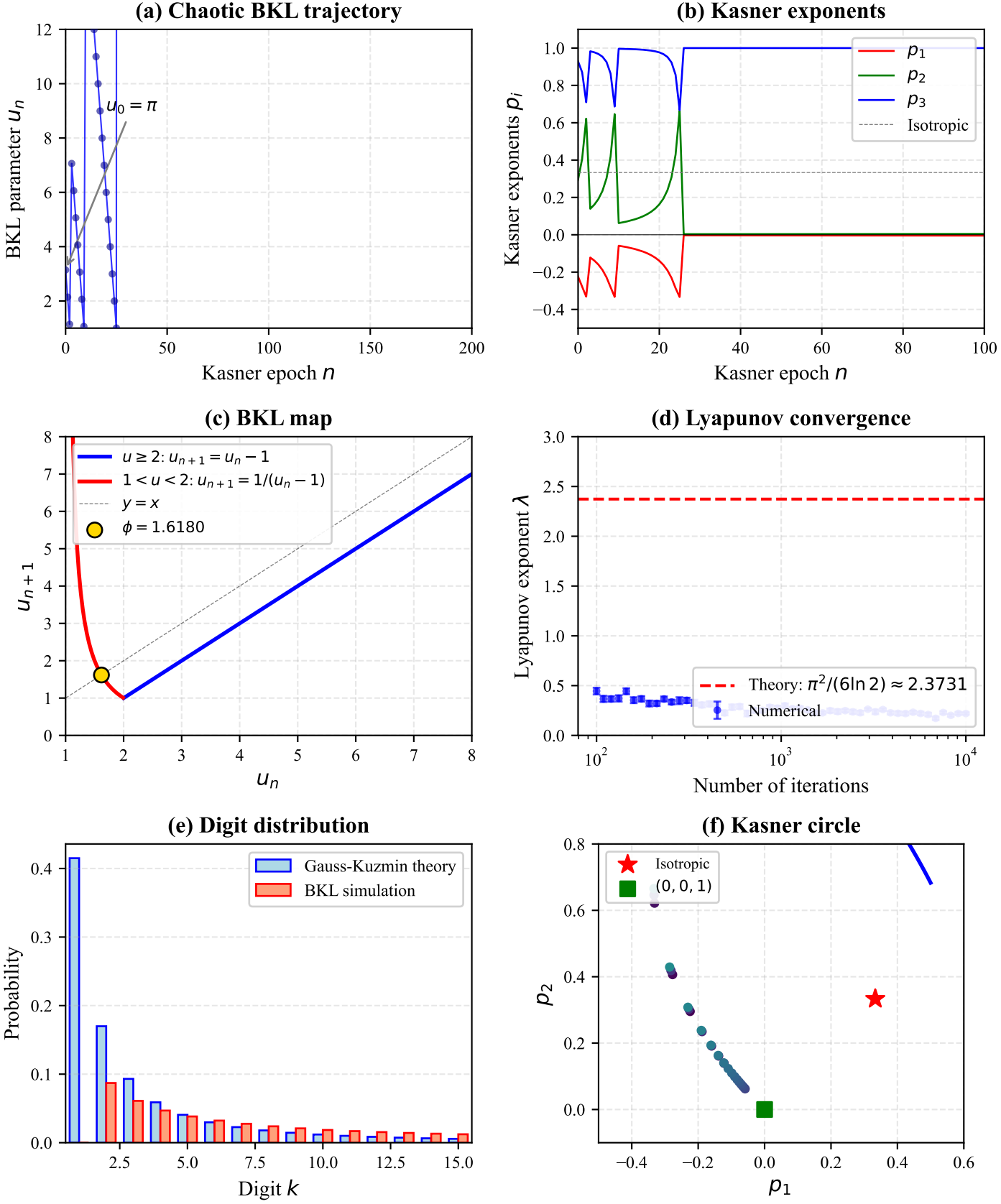
(a) Chaotic BKL trajectory
BKL parameter $u_n$
Kasner epoch $n$
$u_0 = \pi$
(b) Kasner exponents
Kasner exponents $p_i$
Kasner epoch $n$
$p_1$
$p_2$
$p_3$
Isotropic
(c) BKL map
$u_{n+1}$
$u_n$
$u \geq 2$: $u_{n+1} = u_n - 1$
$1 < u < 2$: $u_{n+1} = 1/(u_n - 1)$
$y = x$
$\phi = 1.6180$
(d) Lyapunov convergence
Lyapunov exponent $\lambda$
Number of iterations
Theory: $\pi^2/(6\ln 2) \approx 2.3731$
Numerical
(e) Digit distribution
Probability
Digit $k$
Gauss-Kuzmin theory
BKL simulation
(f) Kasner circle
$p_2$
$p_1$
Isotropic
(0, 0, 1)