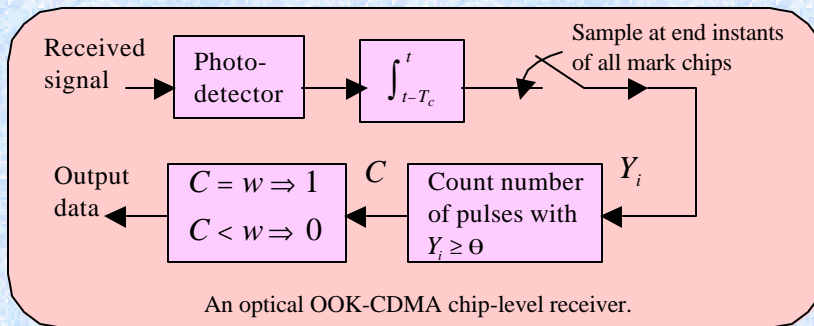


**Complexity and Performance Comparisons
Between Optical OOK-CDMA Chip-Level Receivers
and Double-Optical-Hardlimiters Correlation Receivers**

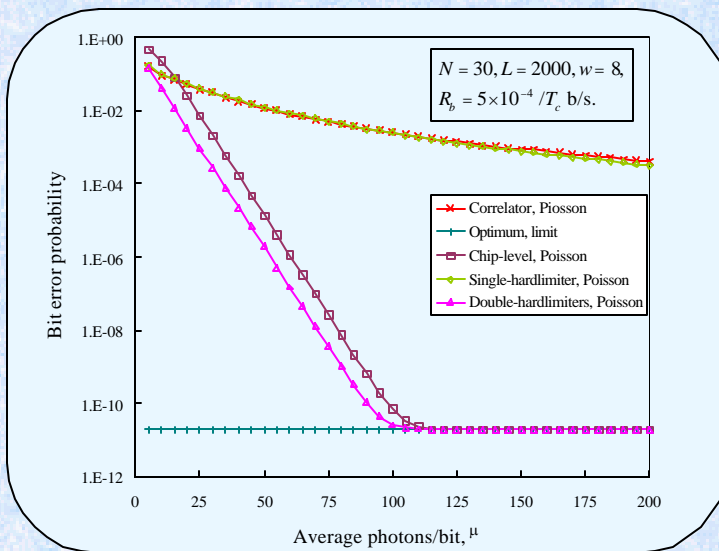
Optical OOK-CDMA chip-level receivers.



- The chip-level receiver does not require the optical correlator.
- No waste of received optical power.
- The information about the signature code is provided in the electronic switch.
- Electronic sampling rate = w/L optical processing rate.
- The chip-level receiver does not involve optical hardlimiters.
- Only one threshold is required for the decision mechanism.
- For a shot-noise-limited system, this threshold is even independent of the system parameters.

2) Bit Error Rate Performance Comparison.

2.A. Poisson shot-noise-limited photodetectors case.



- Optimum thresholds for the double-hardlimiters correlation receiver.
- Ideal sharp characteristics for the hardlimiters.
- A sub-optimum and constant threshold for the chip-level receiver.
- The bit error rate of the hardlimiters correlation receiver is slightly better than that of the chip-level receiver.
- They coincide with each other by increasing the average optical power and reach an error probability floor.