Prospect of the future technology

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Outline
- Trend of optical storage
- Current status and next target
- Technology candidates
  - Multi-level recording, Multi-layer recording
  - Near field recording, Volumetric recording
  - Holographic recording
- Developing status of future technologies
- Making ISOM roadmap

- Trend of Optical Storage -

- Current status and next target -

Technology candidates

Approach to large capacity (1)
Multi-level Recording

Maeda et al. APDSC2006

Multi-level Readout

Maeda et al. APDSC2006

Multi-disk (Sony)


Layer-Selection

by Hitachi in ISOM/ODS’05, MC7

Transmittance and Inter-layer cross-talk were confirmed.

Inorganic electro-chromic material

Approach to large capacity (2)

Pit Selection Using Super Resolution

T. Shintani et al. ODS2006

Transmittance and Inter-layer cross-talk were confirmed.

Inorganic electro-chromic material
Effect of Pit Selection

High NA (> 1)ens

Near field recording set-up

Planar Plasmon Probe

Fabricated novel near-field probe

Approach to large capacity (3)

M. Shinoda et al. ODS 2004

Takuya Matsumoto, Takeshi Shimano and Sumio Hosaka, Technical Digest of 6th international conference on near field optics and related techniques, the Netherlands, Aug. 27-31, 2000, p55.

From InPhase H.P
ISOM Roadmap Outline (1)

1. Don’t touch the current business.

2. Target:
   - Capacity: 200GB to TTB / side / CD size disc
   - Transfer-rate: up to 1Gbps

3. Selected technologies:
   - 2-photon,
   - Super-RENS,
   - Multi-layer,
   - Hologram,
   - Near-field

ISOM Roadmap Outline (2)

4. Make sure the problems and approaches
   Milestone
   Requirements and breakthrough technology

5. Duration: April 2005 to November 2006
   Intermediate Report: ISOM/ODS2005
   Final Report: to be published to Web

6. Organization:
   Coordinators: Members of Steering committee
   Organizers: Members of ISOM committee
   Members: Researchers recommended by organizer

Thank you