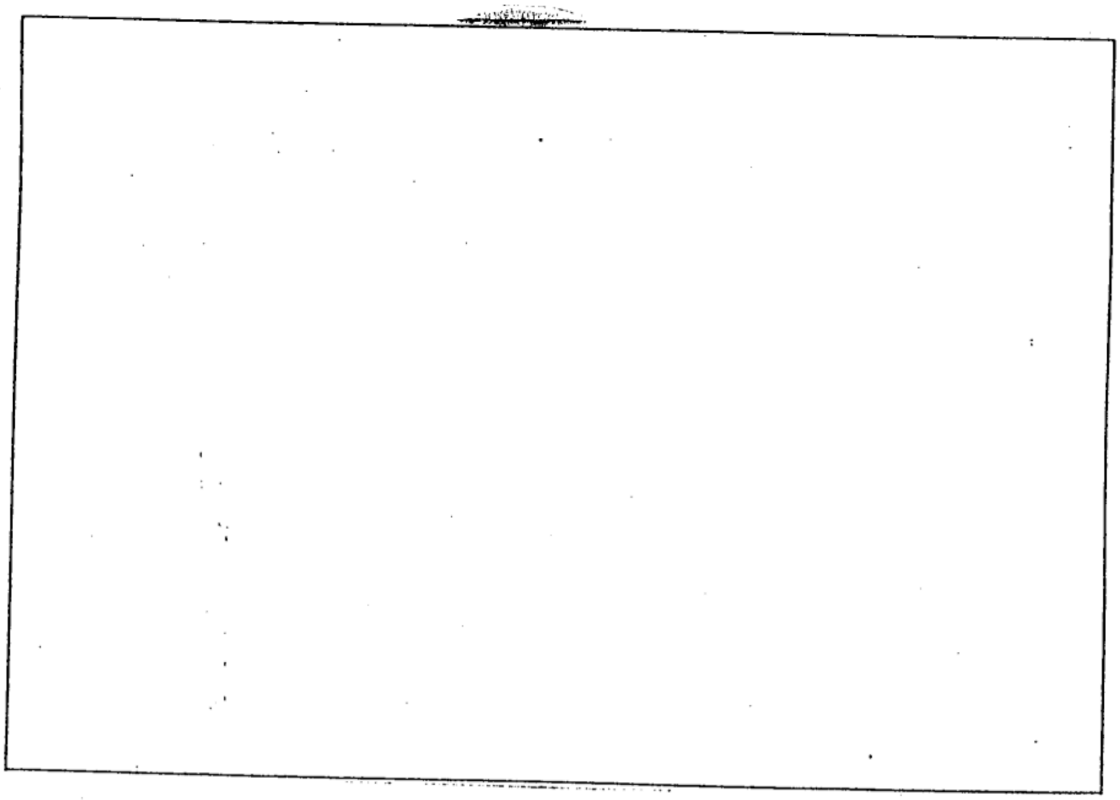
SINGLE BEAM REFLECTION HOLOGRAM
(for 4 by 5 and 8 by 10 inch Holograms on the EXPERIMENTAL TABLE)



SKETCH THE SET UP IN THE BOX ABOVE

PARTS LIST

1. LASER
2. SHUTTER
3. SPATIAL FILTER
4. 8 by 10" MIRROR in GOALPOST CONFIGURATION with TWO MAGNETIC BASES and RIGHT ANGLE CLAMPS
8. WELL-FIXTURED DIFFUSELY REFLECTING OBJECT
6. 4 by 5" PLATEHOLDER ASSEMBLY (if necessary)
7. 10 by 12" MIRROR in GOALPOST CONFIGURATION with TWO MAGNETIC BASES and RIGHT ANGLE CLAMPS (optional)
8. BAFFLES

ALIGNMENT AIDS:

9. CLEAN GLASS PLATE
10. GNOMON
11. OFFITIAL RULER

APPROPRIATE OBJECTS

The objects themselves must be stable and reflective. Paper, most food, and thin-walled hollow plastic things are constantly moving. Paper could be dry-mounted to something thicker; hollow things could be filled with sand or something similar. Plaster or clay could be used, but should be well-cured.

Solid metal objects are stable but may sometims be too reflective, and only specular highlights may come out due to the harsh point source lighting of the **SPATIAL FILTER**. A dulling spray may be necessary.

Green, blue and black objects will not come out due to poor reflectivity of the red beam. When in doubt, look at the **Object** under **Laser Light**. Yellow, orange, red, white, silver and gold work quite well. The favorite permanent spray paint for peak holographic performance is **Krylon #1401 Bright Silver**, as its pigment is small particles of aluminum, which not only is highly reflective, but preserves the polarization of the incoming beam to a certain degree.

Objects may be temporarily colored by hair sprays that will reflect well but may not stick to everything. They are usually carried at venues that cater to alternative culture*.

SET UP STEPS

1. Send the Beam from the **LASER** held in its usual position at the end of the **ISOLATION TABLE** to the center of an **8 by 10" MIRROR** held between two **MAGNETIC BASES** in the GOALPOST manner. Check for the **OFFICIAL BEAM HEIGHT** with the **OFFITIAL RULER** at the **MIRROR**.

2. Direct the Beam from **MIRROR (4)** diagonally across the Table to the opposite corner. Check for the **OFFICIAL BEAM HEIGHT** with the **OFFITIAL RULER** at the last **MIRROR** and tilt **MIRROR (4)** if necessary.

3. If the **OBJECT** is to be mounted on its back on the **Tabletop** or stood upright (See the **Handout, SBR Variations**) another **LARGE MIRROR** on a GOALPOST needs to send the beam downwards. One edge of a **GLASS PLATE** is laid on the **Tabletop** to reflect the undiverged beam back to the **Laser** to verify that the beam is incident in the vertical plane only. The **Magnetic Bases** of the GOALPOSTS are manipulated like shuffling feet to rectify the illumination.

3a. If the object is like the **Waffle Iron** or is mounted on a **KINEMATIC PLATEHOLDER**** it can be placed on the GOALPOST Arrangement instead of the **MIRROR**. Use a **Glass Plate** as

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*. For instance, **The Alley**, at 858 West Belmont Avenue, Chicago, 312-525-3180.

. See the **Handout, KINEMATIC PLATEHOLDER, in press.

described above on the **Object Holder** to make the **Reference Beam** purely vertically incident. Note that the top of the **Object** is at the bottom of the arrangement for Top-lit reconstruction.

4. Insert the **SPATIAL FILTER (3)** with a **10X Microscope Objective** after the **SHUTTER (2)**. Leave about two inches clearance further downbeam from the shutter for more components to be added in later setups. Center the Spread Beam on a **TARGET CARD** after the **MIRRORS** at the far end of the **TABLE**. Clean the beam with the **Pinhole***.

5. Block STRAY LIGHT, especially any that might come from behind the **PLATEHOLDER** that could act as a second REFERENCE BEAM! Usually a piece of cardboard or the cover from a **MIRROR** leaning up against the **Laser** will shade the **Holographic Plate** from the laser spot on the **SHUTTER**.

6. Expose, process and evaluate the hologram. Use the **DEMONSTRATION HOLOGRAMS** as exposure guides for color control and brightness.

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*. See the **Handout, SPATIAL FILTERS.**